

IMPACTS OF RECREATION USE LIMITS
IN THE ALPINE LAKES WILDERNESS

by
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characteristics of their trips, perceptions of social impacts, and overall wilderness recreation behavior.

Chapter 5: Permit Applications and Use Levels. Data from permit applications and Forest Service records is described in detail. Use increased slightly between 1987 and 1988, as did the size of parties. More people reserved permits in 1988. Overnight use levels rarely exceed the standards outlined in the Alpine Lakes Management Plan, but daytime use is much heavier.

Chapter 6: Discussion. This chapter includes discussions of present and future use patterns, changes in use caused by the permit system, the system's effect on visitors' experiences, and substitution/displacement. The permit system seems to have been accepted by most visitors. The supply of permits currently meets demand, but research suggests that competition for permits will increase. As this happens, more people may use the reservation system. Other strategies may include submitting duplicate applications, applying earlier, forming bigger parties, and choosing new times to visit or new destinations within the permit area.

Reasons for the abrupt decline in use between 1986 and 1987 are discussed in a second section. Since this decline is unlikely to continue, suggestions are offered on how the Forest Service can alter use patterns by encouraging within-setting displacement. An examination of equity of the permit system suggests that it is fair to all applicants.

Most visitors express satisfaction with the Enchantments experience, but many people still feel crowded. The solution may lie in extending the quotas to daytime as well as overnight use. Means of monitoring social impacts are suggested, as are the advantages and disadvantages of measuring social impacts in terms of people, parties, or encounters.

It is likely that many previous Enchantments users have been voluntarily displaced from the area, although involuntary displacement through permit denial is rare. The impacts of this displacement are evident mainly in the other portions of the Alpine Lakes Wilderness. This may suggest a need for extending the permit system wilderness-wide. A slim majority of respondents favored an expanded system.

Appendices. Four appendices are offered. Appendix A is a copy of the survey questionnaire, with means and frequencies of responses added. Appendix B is an example of a short survey that could be used to monitor encounters. Appendix C lists settings which are considered similar to the Enchantments, and Appendix D lists locations in the Alpine Lakes Wilderness where use appears to have increased since the permit system was implemented.

EXECUTIVE SUMMARY

Chapter 1: Introduction. Draft national forest plans for the Pacific Northwest predict that demand for wilderness recreation will soon exceed supply in some areas. As a result, impacts may exceed wilderness standards, and the quality of recreation experiences may deteriorate. Use limits are one management option which can prevent this deterioration. The effect of such limits was studied by surveying visitors to a popular portion of the Alpine Lakes Wilderness called the Enchantments, where a permit system was recently initiated. The ways in which people use the permit system was examined, along with its effect on use patterns, on the Enchantments experience, and on other settings which may be visited by displaced users.

Chapter 2: Background. The first half of this chapter describes the physical and managerial setting. Use of the Enchantments, a high alpine plateau, peaked at an estimated 50,000 people in 1978. In the mid-1980s about 20,000 people visited the area each year, but use fell by as much as two-thirds following implementation of the permit system. The system is described, along with prior management actions and current standards for wilderness impacts.

A literature review discusses research on methods of reducing social impacts in wilderness settings, with emphasis on use-rationing methods. Also reviewed are research on displacement of users within settings and from one setting to another, and on the substitutability of settings and/or activities.

Chapter 3: Methods. The sampling design attempted to reach every person for whom the permit system did not work perfectly -- i.e., those who were issued permits for second- or third-choice dates, who failed to obtain

permits, or who visited without permits. Smaller samples were drawn from the populations of first-choice permit recipients and people who failed to use their permits. Overall, responses were received from 85 percent of the survey sample.

Chapter 4: Survey Results. A detailed description of the survey results is divided into four sections. The first describes interaction with the permit system, including success rates, timing of applications, users' perceptions of the permit system's effect on present and future use of the Enchantments, and reasons for violating the permit rules. Nearly all applicants successfully obtain permits, and although nearly half say the permit system has reduced their likelihood of visiting the Enchantments, a majority intend to continue visiting.

A second section discusses substitution and displacement behavior, both the reported behavior of those who could not get permits and the hypothetical responses of successful applicants. Most people expected to substitute another wilderness experience, and there was a strong tendency toward repeat attempts to visit the Enchantments. Most substitute settings are in the mountains of central or western Washington. Effects of activity and experience are also discussed.

The third section discusses a proposal to extend the permit system to the entire Alpine Lakes Wilderness. People who had not visited the Enchantments were more likely to approve of an expanded system than those who had visited. There was very little support for requiring permits during winter and spring months.

The fourth section is a detailed description of the survey sample, including data on demographics, activity patterns, temporal and spacial

INTRODUCTION

The national forests of the Pacific Northwest region are presently completing their ten-year forest management plans. These plans describe the existing supply of wilderness resources, set forth the standards and guidelines that define high-quality wilderness recreation opportunities, and estimate the projected demand for wilderness recreation through the next decade. On some forests, demand for wilderness recreation opportunities is expected to exceed the supply. If so, national forest managers may be unable to achieve prescribed wilderness standards. The net result could be deterioration of the quality of wilderness recreation on the affected national forest and in the region as a whole.

The concept of "deteriorating quality" implies that judgments have been made about the wilderness resources and the experience opportunities they offer. National forest plans provide wilderness managers with evaluative standards upon which to base these judgments. If the demand for wilderness recreation opportunities exceeds the supply offered by any given resource, that resource is likely to have reached its carrying capacity, defined as "the level of use beyond which impacts exceed acceptable levels specified by evaluative standards" (Shelby and Heberlein, 1986).

Managers concerned about the potential deterioration of wilderness quality have several management options (Hammitt and Cole, 1987; Hendee et al., 1978). The choice of a management strategy depends on the specific characteristics of the affected resource, the types of impacts that are occurring, and the extent to which they exceed the evaluative standards. Often low-intensity management techniques such as posting signs or

distributing brochures are sufficient to solve a management problem. Where less restrictive measures prove ineffective, managers may choose some means of limiting or rationing use.

Within the Pacific Northwest Region, the latter strategy has been employed by the Leavenworth Ranger District of the Wenatchee National Forest. Since 1987 the Leavenworth district has administered a permit system in which use limits are imposed on campers within a popular section of the Alpine Lakes Wilderness known as the Enchantments. Since the permit system and campsite quotas were implemented, there has been a substantial reduction in the number of nights when standards for social impacts in the Enchantments are exceeded (USDA Forest Service, 1987).

When impacts are kept within evaluative standards, the quality of the recreational experience can be improved for those users who remain able to use the resource. However, rationing systems may also lead to displacement of some users who can no longer enjoy a preferred activity in a preferred setting at a preferred time. Displacement can occur within the resource (e.g., by altering the exact location of an activity or the time when it takes place) or to an alternative resource (Anderson and Brown, 1984). In evaluating the overall effectiveness of the Enchantments permit system, it is necessary to consider the effects on all potential users, including those who may be displaced as well as those who achieve their preferred experience. Questions which must be answered include:

- How do prospective Enchantments visitors use the permit system?
- How does the permit system change the ways in which people use the Enchantments?

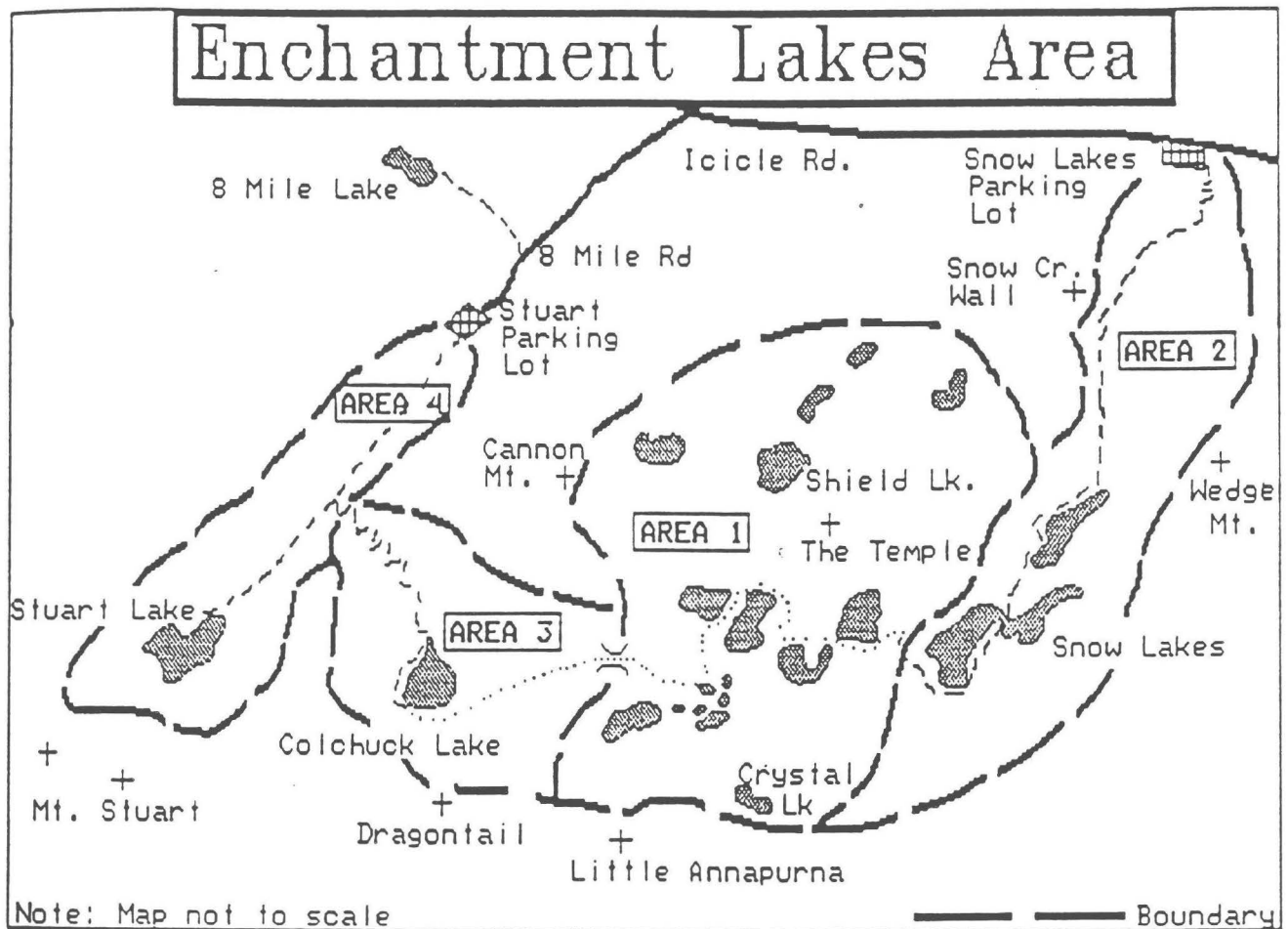
- How do users perceive that the permit system has affected their Enchantments experiences?

- How are other recreation areas affected by restrictions on use in the Enchantments which can displace potential visitors to substitute wilderness resources?

This paper describes the results of a survey administered to recreationists who applied for Enchantments visitor permits in 1988, including those who were unsuccessful in obtaining a permit for their preferred time and place. The survey was designed not only to seek answers to the questions outlined above, but also to gain better insight into use patterns in the Enchantments and the characteristics of users themselves. Also included were questions concerning a proposal to expand use limits to cover the entire Alpine Lakes Wilderness. The findings suggest that while the permit system has changed the way that people use the Enchantments, relatively few of the people who applied for permits were unable to achieve either the wilderness experience they prefer or else a different experience they enjoyed equally well.

The report offers specific information on the Enchantments permit system, but is also written for wilderness managers and researchers in general. Readers with a more general interest in wilderness allocation, displacement or substitutability may want to skim the chapter entitled "Permit Applications and Use Levels" and the section of the "Survey Results" chapter entitled "Visitor and Visit Characteristics."

Figure 1.



20,000-25,000 visitor days. Even these levels produced impacts which are considered well above the standards set by the Alpine Lakes Management Plan. Those standards, and the levels by which they were exceeded in 1985, were:

Snow Lakes: No more than seven encounters per day. This standard was exceeded on 51 percent of the days when use was monitored in 1985.

Stuart Lake and Colchuck Lake: No more than seven encounters per day for 50 percent of the season. The seven-encounter standard was exceeded on 42 percent of the days when monitoring was done at Stuart Lake and 42 percent of the days when use was monitored at Colchuck Lake.

Enchantments core: Sixty people at one time (PAOT). This standard was exceeded 45 percent of the time by an average of 55 people.

Social impacts were most likely to exceed standards on weekends during the entire season, or anytime during August. In the Enchantments core, standards were exceeded on about 65 percent of August weekdays.

Several other management actions were taken before a permit system was implemented. These actions included seasonal restrictions on pack and saddle stock, a ban on dogs, installation of toilets, bans on campfires at Colchuck Lake and the Enchantments, group size limits, and a ban on commercial outfitting. The permit system was enacted after an environmental assessment was conducted by the Leavenworth Ranger District in 1986.

During the permit season, all users are required to obtain permits, including day hikers. Permits may be reserved by mail or in person, for a fee of \$1 per person per day. However, there is no fee for same-day and day-use permits. Persons who apply for reservations are asked to indicate their anticipated entry and exit points, preferred camp location (Enchantments core, Stuart Lake, Colchuck Lake, or Snow Lakes) and three preferred entry and exit

dates. Reservations are processed in order of receipt until each day's quota has been met. Approximately 25 percent of the available permits are set aside for people who apply on a first-come, first-served (queue) basis for the day they plan to enter. If reserved permits are not picked up by 9 a.m. on the day of departure, these are also made available to same-day visitors. Fees are non-refundable if reservations are made, but are returned if preferred dates are already taken.

Use quotas are imposed for overnight camping at each of the four locations. However, there are no limits on the number of people who may enter an area for day use, and the standards are applied only to overnight use. Because many people stay more than one night at a campsite, daily permit quotas must be set lower than the standards. The quotas are based on average party size and length of stay, so standards may occasionally be exceeded by small amounts if camping parties are larger than usual or stay longer at one site. The quotas are:

Snow Lakes: Five parties per day.

Stuart Lake: Five parties per day.

Colchuck Lake: Four parties per day.

Enchantments core: 60 people at one time, with entry allowed for no more than 20 persons each day. In 1987 the per-day limit was set at 25 persons, but this quota was reduced the following year because it was found that people were staying an average of four days rather than three days as originally anticipated by the Forest Service.

In 1987 the permit season lasted from June 1 until Sept. 30. There was little use in early June, but on the weekend of Oct. 2-4, 1987, rangers counted 87 cars at the Stuart/Colchuck trailhead and 60 cars at the Snow Lakes

trailhead. Therefore, the season was set for June 15 - Oct. 15 beginning in 1988.

The number of visitors to the Enchantments dropped by about two-thirds during the first year that the permit system was in force (USDA Forest Service, 1987). This occurred even though all of the applicants successfully obtained permits for their preferred time and location (see the Results section of this paper). At least four potential explanations can be offered. First, the permit system may have deterred potential users who prefer not to take the time and effort required to secure a permit. Second, many prospective users may be unaware of the permit system until arriving at the setting and seeing signs announcing that permits are required; they may divert to a substitute location on the assumption that it is too late to acquire a permit. Third, previous levels of use may have been overestimated. Finally, it is possible that the decline is not due to the permit system but reflects a nationwide trend away from overnight backcountry camping (Roggenbuck and Lucas, 1987), thus continuing the 60-percent reduction in Enchantments use which was observed between 1978 and 1982.

Literature Review

To maintain high-quality wilderness recreation, managers have several options which may affect the wilderness user either directly or indirectly (Hammitt and Cole, 1987). Indirect management activities may include information strategies designed to educate users and change their behavior, or alterations to the physical environment such as modifying access roads, changing campsite or trail characteristics, or manipulating plant and animal populations. Direct management activities include zoning, increased

enforcement activities, restrictions on certain activities, or limiting user numbers. Of this group, use limits are often considered an option of "last resort" (Hendee et al., 1978).

Several management strategies have been developed, including Limits of Acceptable Change (Stankey et al., 1985), Visitor Impact Management (Graefe et al., 1985), and Carrying Capacity Assessment Process (Shelby and Heberlein, 1986). Each of these strategies offers flexibility in management alternatives. The choice of a strategy should be based on the types of impacts that are occurring as well as on managers' needs and capabilities. For example, use limits are best suited to settings where social impacts are a main concern, because social impacts tend to intensify with increased use and may be mitigated with relatively small reductions in visitation (Shelby and Heberlein, 1986). However, use limits may have limited effectiveness in controlling certain kinds of ecological impacts, which tend to be nearly as large when use levels are modest as when they are high (Hammitt and Cole, 1987).

Use limits have been used more frequently at national parks and whitewater rivers than in national forest wildernesses, but they have been employed by the USDA Forest Service in some settings for more than a decade (Stankey, 1979). Researchers have found support for use limits in a variety of settings (Bultena et al., 1981; Stankey, 1980). In a survey of users at two southern California wildernesses, Stankey (1979) found that 82 percent believed a rationing system offered protection for the wilderness and an opportunity to enjoy a high-quality recreation opportunity. It should be noted that in these surveys the context of the questions proposed that overuse was a problem. When people are informed of the rationale for and probable

benefits of use limits, they are more likely to perceive that those limits are necessary or beneficial (Lucas, 1983). They are also more likely to support use restrictions if they are repeat visitors to a setting (Frost and McCool, 1988) and if they perceive that the rationing system offers all users a fair chance of obtaining a permit (Shelby et al., 1989a).

No matter how fair the rationing system, however, some proportion of potential users may be denied the opportunity to pursue their chosen activity in a preferred setting at a preferred time. These "displaced" recreationists are likely to choose a substitute experience, which may occur within the same setting or an alternative setting.

Schreyer (1979) defined displacement as a behavioral response to changes in social, managerial or resource conditions. The occurrence of displacement indicates that present recreation opportunities are not sufficient to provide desired experiences, and implies that other areas will absorb the displaced use, perhaps resulting in the overuse of the new area (Shelby et al., 1988). As increased use creates social impacts which exceed the norms for individual users, some users may voluntarily become displaced. For example, Becker (1981) found that some users of the lower St. Croix River shifted to the Upper Mississippi because of crowding and other social impacts. If such impacts become widespread and severe enough to lead managers to impose use restrictions, the number of voluntarily displaced users is likely to increase because some users will choose not to make the additional effort required to secure a permit. Use limits also tend to create a new group of involuntarily displaced users who are willing to accept changing conditions, but can no longer obtain a permit.

Displacement can occur within a resource or from one resource to another. Examples of displacement within a resource have been reported in the Grand Canyon (Nielsen and Shelby, 1977), where some rafters visited fewer attraction sites or spent less time at attraction sites in order to limit contact with other parties; in the Boundary Waters Canoe Area (Anderson and Brown, 1984), where visitors reported entering at new locations or on different days of the week; and in the Desolation Wilderness in California (Stankey, 1980), where 42 percent of hikers changed the length and/or route of their trip because of use density.

Displacement from a resource occurs when a recreationist perceives that (1) unacceptable change has occurred in a preferred setting, and (2) an acceptable alternative experience is available. Several factors can influence evaluations of the acceptability of alternative experiences. Baumgartner and Heberlein (1981) suggest that alternative recreation experiences can be considered "substitutable" if they offer an opportunity to attain an acceptable mix of satisfactions along three dimensions: participation, goal achievement, and social interaction. The choice of a substitute experience may also be subject to constraints such as the amount of information available about suitable recreation settings, limitations on time and distance, financial considerations, and personal attitudes and values (Shelby et al., 1988).

A substitute recreation experience may consist of the same activity at a different setting, or a different activity altogether. Much effort has been devoted to the search for substitutable activities, but without much success. Researchers have tried to group substitutes by participation rates (Hendee and Burdge, 1974), reported satisfactions (Hawes, 1979), social characteristics

(Field and O'Leary, 1973) and motivations (Tinsley and Johnson, 1984). Since we can expect that recreation experiences are more likely to be substitutable if they are perceived to be similar, the lack of success may be due to an inability to define what makes potential substitutes similar (Vaske et al., 1983).

If similarity is truly necessary for experiences to be considered substitutable, displaced recreationists may be likely to look for opportunities to enjoy the same experience at different settings. When Manfredo and Anderson (1987) asked fly anglers about the hypothetical possibility of their preferred river being unavailable, 95 percent said they would choose an experience offering the same activities at a different location. If this pattern is repeated in other settings where use limits may be enacted, the ability to find a suitable substitute is likely to depend upon users' perception of the availability of other settings which can provide the same experience as the original setting.

Perceived availability of substitutable settings can depend on characteristics of the setting or of the people using them. Certain settings may offer unique combinations of attributes for which there are few substitutes. The Grand Canyon may be one such setting (Dekker, 1976). A person's level of commitment to the experience may also affect perceptions of substitutability (Jacob and Schreyer, 1980). This influence could take either of two forms: People who consider a certain experience highly important may be more likely to perceive that the experience is unique, as suggested by Baumgartner and Heberlein (1981). Alternatively, since committed participants tend to be avid seekers of information about their activity (Manfredo, 1989),

they may be more likely to be aware of alternative settings than less committed users, and therefore more capable of finding a suitable substitute.

Review of the previous research raises several issues pertaining to the permit system used in the Enchantments. Users' support for the system is likely to depend on factors such as their perceptions of use impacts, their previous recreation experience in the Enchantments, and their ability to secure a permit to visit during a preferred time. Some users can be expected to adopt strategies which are designed to increase the chance of securing a permit for a preferred time and location, while others may be displaced in time by choosing a date when a permit is easier to secure. Or they may be displaced even further in time, choosing to visit outside the season when permits are required. Finally, if people are displaced from the Enchantments entirely, they are likely to seek substitutable experiences elsewhere.

Not only will the perceived availability of substitutes affect users' support for the permit system, but it could influence the way that wilderness use is redistributed within the Pacific Northwest Region. Thus information about the effects of the Enchantments permit system on wilderness recreation patterns can be valuable not only to managers of the Enchantments, but also to managers of other wilderness resources within the region.

METHODS

Data for this study came from two sources. Information about daily usage and permit applications during the 1988 permit season was provided by the Leavenworth Ranger District. This information is presented in the chapter of this paper entitled "Permit Applications and Use Levels." The other source of data was the visitors themselves, who were surveyed via a mail questionnaire administered to a stratified sample of the user population. This survey was designed to collect users' evaluations of the permit system (its effectiveness and effect on the wilderness experience), their responses to denial of a permit application, and their knowledge of acceptable substitutes, as well as detailed information about the characteristics of Enchantments trips and the users themselves. The questionnaire was pre-tested in the summer of 1988 using a small sample of 1987 permit applicants.

The sample for the actual survey was drawn from a list provided by the Forest Service which contained more than 2,000 names and addresses of every 1988 permit applicant, plus smaller lists of people who had received citations for failing to obtain a permit and of off-season visitors who had filled out voluntary registration forms. A stratified design was used in order to reach all or part of seven subsets of the potential Enchantments visitor population:

- Visitors who secured permits for the date of their first choice (including all those who obtained permits on the day of their trips instead of using the reservation process).
- Visitors who secured permits for the date of their second choice.
- Visitors who secured permits for the date of their third choice.
- Visitors who made their trips before June 15.

- Persons whose permit applications were turned down. (This group included 30 people whose formal applications were rejected, plus 11 who did not formally apply, but who had inquired about specific dates and were told that reservations for those dates were no longer available.)

- Persons who successfully used the reservation system to obtain a permit, but failed to pick up the permit (no-shows).

- Visitors who made trips during the permit season but failed to obtain a permit.

Forest Service records were used as the basis for classifying respondents into the seven subgroups. Nearly 90 percent of the total sample were first-choice recipients, and nearly half of the remainder were no-shows. An attempt was made to obtain responses for every member of the five smallest subgroups. A random sampling technique was used to choose survey recipients from the larger subgroups of first-choice recipients and no-shows.

The use of variable sampling rates was needed in order to gather a usable sample of responses from persons who were not perfectly accommodated by the permit system. However, this method may also lend disproportionate weight to responses showing dissatisfaction with the system. Most people who applied for day-use or queue permits fell into the first-choice recipient category. Since the sampling rate for first-choice recipients was smaller than for other groups, queue applicants and day users may be under-represented in the survey sample. A third potential source of bias was the fact that permit applications are submitted for entire parties rather than individually, so that the sampling frame tended to select party leaders over other group members. However, when Jubenville (1971) tested for bias attributable to

sampling party leaders, he found no significant differences between leaders and other group members except in demographic characteristics.

The initial mailing of 488 surveys was made in December 1988. A series of three follow-up mailings was used, following the method described by Dillman (1978). All completed questionnaires had been received by late February 1989. Of the 488 surveys mailed, 31 were returned as undeliverable. Completed questionnaires were received from 388 of the remaining 457 respondents, for a response rate of 84.9 percent. Table 1 shows the sample sizes and response rates for each of the subgroups.

The survey instrument¹ was lengthy, containing questions designed to gather a wide range of information. This data can be divided into four major categories:

Interaction with the Permit System. Both visitors and non-visitors were asked about the strategies they used to try to obtain a 1988 permit and potential strategies for obtaining a 1989 permit, including such issues as advance planning, temporal displacement within the resource, and reasons for failure to pick up a permit.

Responses to Denial of a Permit (Substitution and Displacement). A large portion of the questionnaire explored the reactions of people whose initial permit application was denied. This category includes information about displacement (both within the resource and to another resource) and substitutability, plus users' comparison of the experience they had originally planned with the one which actually occurred.

¹Appendix A contains an example of the questionnaire, annotated with the number of responses and means and/or frequency distributions for each question.

Table 1. Subgroup responses to Enchantments survey

Subgroup	Surveys			Response rate (%)
	Mailed	Received	Undeliv.	
First choice recipients	259	211	17	85
Second choice recipients	33	31	1	97
Third choice recipients	15	13	0	87
Off-season visitors	58	35	4	65
Rejected applicants	41	38	1	95
No-shows	50	40	2	83
Violators	32	20	6	77
TOTAL	488	388	31	85

Support for Permit Systems. Visitors and non-visitors were each asked if they would favor a use-rationing system for the entire Alpine Lakes Wilderness. These questions offered the Forest Service a preview of the likely visitor reaction to proposed expansion of the Enchantments permit system. A show of support for an Alpine Lakes permit system could also indicate broader support for wilderness rationing systems.

Visitor and Visit Characteristics. This category includes standard demographic information (age, income, etc.); data on the breadth and depth of users' wilderness experience; preferences for activities and settings, including perceptions of overuse; importance ratings for experience goals and campsite attributes; and descriptions of typical Enchantments trips. Demographic data was collected from the entire sample, including those who have not visited the Enchantments, while other information is only for those who have visited.

The "Survey Results" chapter of this report describes the findings within each category which pertain directly to the research questions outlined in the introductory chapter. Portions of the questionnaire which examined campsite choice and experience goals have been discussed elsewhere. Readers who are interested in this other information are referred to Brunson (1989a, 1989b.)

SURVEY RESULTS

Of the 388 people who completed the survey, 346 (89.2 percent) had visited the Enchantments at least once, although a few members of the latter group may not have made an Enchantments trip during 1988. The 42 respondents who had never visited the wilderness were people who had applied for a permit but whose applications had been rejected, or who for other reasons were unable to make their trip. The latter group, which will be referred to as "non-visitors" in this report, answered only a small portion of the questionnaire and was treated separately in the data analysis.

Interaction with the Permit System

Success rates for permit applicants. Initial applications were granted for 87 percent of the respondents, and rejected for 13 percent. Among the respondents who successfully obtained permits, 92 percent reported claiming and using them.

Three-quarters of the respondents who visited in 1988 reported receiving a permit for their first-choice trip date. Permits for second-choice dates were received by 12 percent of the group, and 4 percent were given permits for their third-choice date. Forest Service records indicate that 91 percent of those who applied through the reservation system were granted permits for their first-choice dates. The discrepancy between survey responses and Forest Service records is almost certainly due to the sampling strategy employed in the survey. (All those who received permits for second- and third-choice trip dates were surveyed, compared to only 13 percent of those who were awarded a permit for their first-choice date.)

Repeat attempts to obtain a permit. A majority (61 percent) of those whose initial application was rejected chose to reapply for a permit. Of the 14 people who reapplied using the queuing method, 11 (79 percent) were successful. Nine of the latter group were able to obtain a permit on the day they had originally planned to begin their trip, so that queuing did not cause a significant delay. The remaining two parties had to wait until the second day to obtain a permit. Despite the day's delay, neither party spent less time in the Enchantments than they had planned. Still, both respondents said they enjoyed the trip less as a result. One person enjoyed the trip more as a result of queueing, while the rest said it had no effect.

Of 11 people who re-applied via the reservation system, eight (73 percent) were able to obtain a permit, but usually at some cost in terms of length of stay or choice of trip dates. Four parties were successful on their second attempt, while the other four had to reschedule and reapply twice before getting a permit. Three parties (38 percent) spent less time in the Enchantments than originally planned, with one party spending one less day in the Enchantments and the others spending two fewer days.

Although the reservation forms contain space for listing three prospective entry dates, applicants are not required to do so. Thus some people may have been forced to reapply because they only listed one date on their initial application. However, two respondents said their parties obtained permits for their third-choice date on their second application. It is therefore possible that a few Enchantments visitors were able only to obtain a permit for their sixth-choice date.

Unclaimed permits. Eight percent of respondents failed to claim their permits, and offered a number of reasons for doing so. The most common reason,

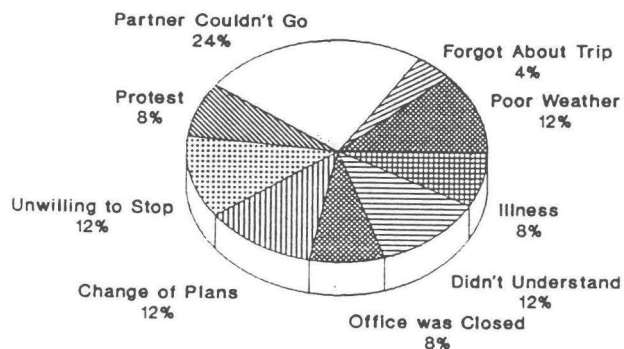
offered by 25 percent of no-shows, was that companions had been unable to make the trip (Fig. 2). Other common reasons were illness, bad weather, and a change of plans. A few people actually made the trip, but didn't pick up their permit because the ranger station was closed when they arrived, they didn't know they needed to stop, or they simply didn't feel like stopping.

Timing of permit applications. Most 1988 visitors applied for a permit either the day before (12 percent) or the day of (38 percent) their trip (Fig. 3). Only 25 percent submitted their applications one or more months before they planned to arrive at the trailhead. Those who submitted applications earlier were not more likely to get a permit for their first-choice date ($F=1.63$, $p>.10$).

Effect of permit system on visiting. A slim majority of both visitors (56 percent) and non-visitors (54 percent) said that the need to apply for a permit had not reduced the likelihood that they would visit the Enchantments (Fig. 4), even though 60 percent of non-visitors said they would have visited in 1988 if they'd been able to obtain a permit.

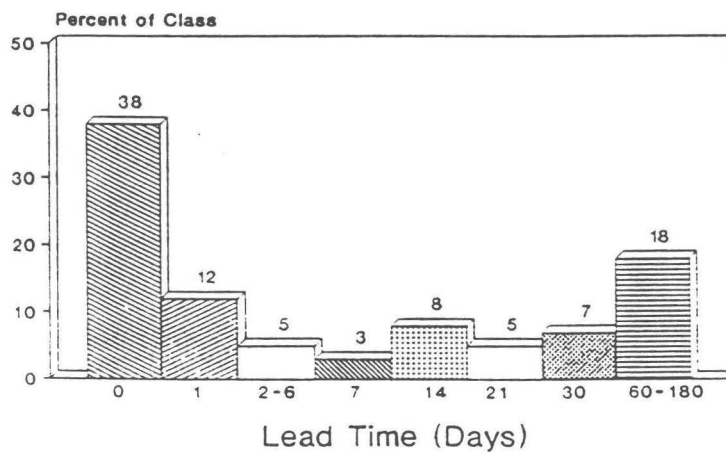
For the 44-46 percent who believe that the permit system does reduce their likelihood of visiting the Enchantments, difficulty of planning was the most frequent reason given by both non-visitors (Fig. 5) and visitors (Fig. 6). Among non-visitors, other reasons included: a perception that permits are too hard to get, difficulty in dealing with Forest Service personnel, the loss of spontaneity in undertaking a trip, and a general dislike of use limits. Among visitors, other factors were the loss of spontaneity, possibility that an application might be turned down, and the difficulty of getting a permit for a desired date.

Figure 2. Reasons For Not Claiming Permits



1988 Permit Recipients

Figure 3. Lead Time in Submitting Permit Applications, 1988 Visitors'



Enchantments Area

Figure 4. Effect of Permit System on Likelihood of Visiting

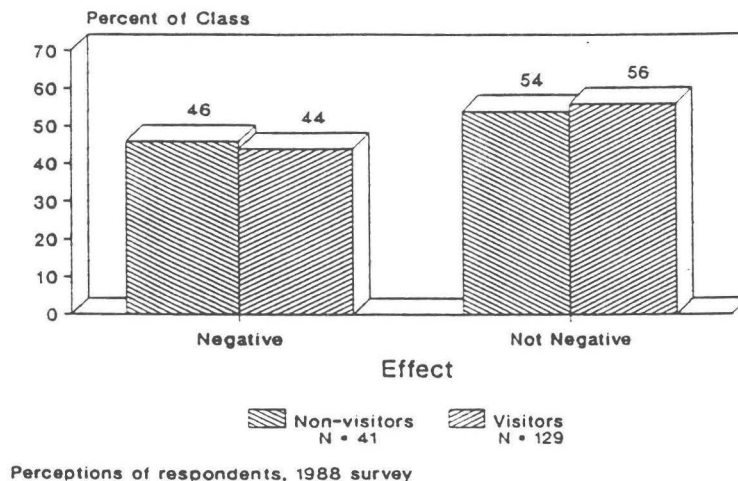


Figure 5. Reasons For Perception of Being Less Likely to Visit Non-visitors

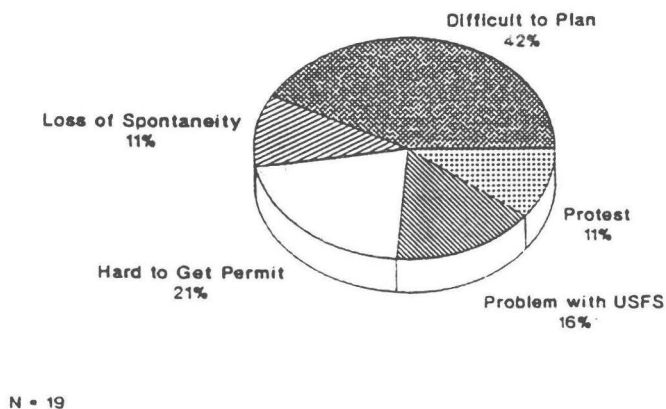
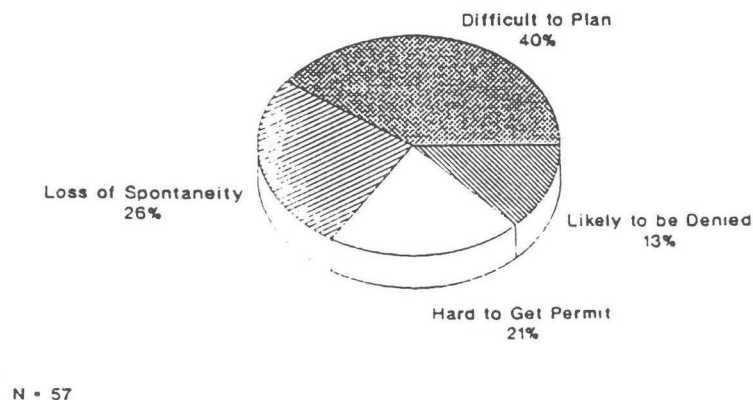


Figure 6. Reasons for Perception of Being Less Likely to Visit Visitors



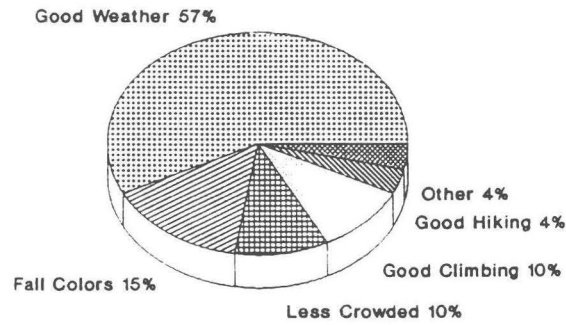
About 52 percent said they chose to visit during the permit season because they would be more likely to enjoy their preferred recreation at that time. Among those who gave reasons for preferring to visit during the permit season (see Fig. 7), 57 percent said their preference was related to weather, 15 percent to fall colors, 14 percent to hiking or climbing conditions, and 10 percent to reduced crowding.

Of the 30 people whose 1988 visits occurred outside the permit season, 20 percent said they did so deliberately to avoid having to obtain a permit. Among the 42 non-visitors, 24 percent said they had considered making an Enchantments trip outside the permit season.

Violation of permit rules. No one who had applied for a permit reported that they chose to visit the Enchantments in spite of having their application denied. However, 4 percent of the respondents who had camped overnight said they had done so without a permit. Of the latter group, 50 percent said it was worth risking a fine, 40 percent did not understand that a permit was required, and 10 percent underestimated the length or difficulty of a planned day hike and were forced to spend the night in the wilderness.

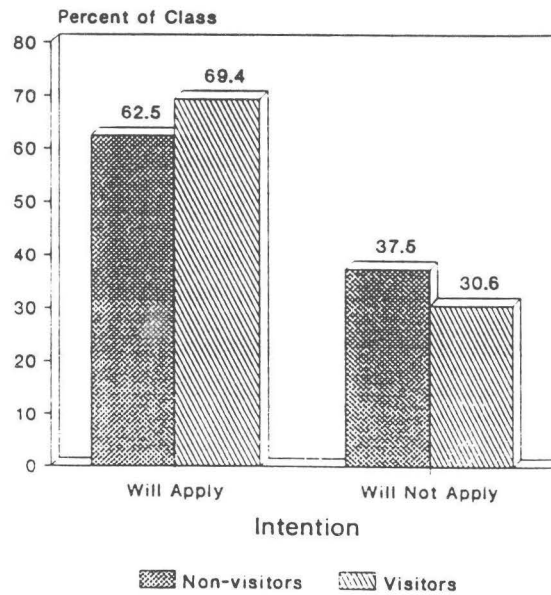
Future use of the permit system. A majority of both visitors and non-visitors said they intend to apply for a permit to visit the Enchantments area in 1989. Among non-visitors, 62 percent plan to reapply (Fig. 8), and they intend to do so an average of 2.4 months in advance of their anticipated trip date. Among those non-visitors who said they do not intend to apply for a permit in 1989, the most common reason was a desire to visit some other wilderness area (Fig. 9). Other reasons included: perception that permits are too difficult to obtain, or too expensive; disapproval of limits on wilderness use; and plans to visit outside the permit season.

Figure 7. Reasons for Visiting During the Permit Season



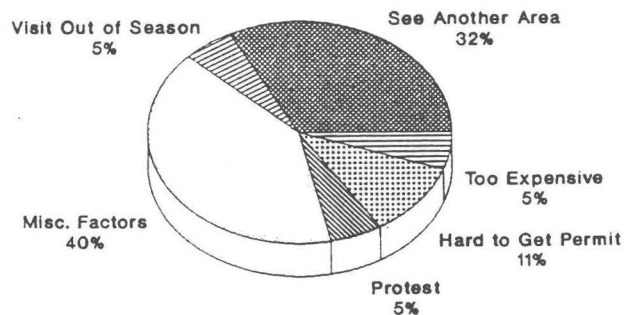
1988 Enchantments Area Visitors

Figure 8. Intention to Apply For a Permit in 1989



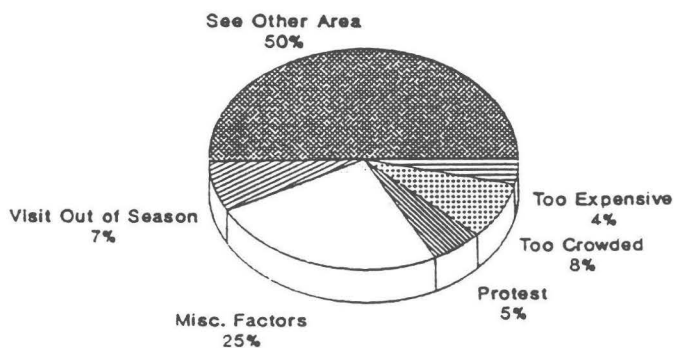
1988 Enchantments Visitors

Figure 9. Reasons for Not Applying for a Permit in 1989
Non-visitors



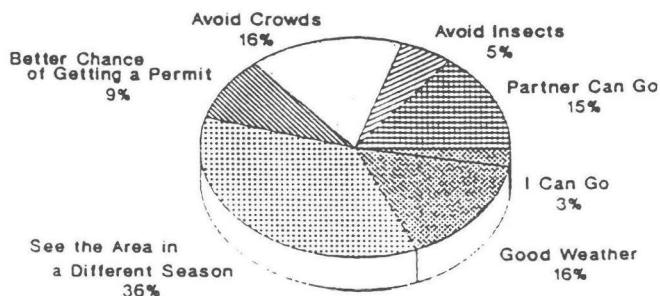
N = 16

Figure 10. Reasons for Not Applying for a Permit in 1989
Visitors



N = 109

Figure 11. Reasons for Applying for a Different Time of Year in 1989
Visitors



N = 57

A slightly larger majority of visitors (69 percent) intend to apply again in 1989. Of these, 77 percent planned to apply for permits that would allow them to visit at the same time of year in 1989 as they did in 1988. Roughly a third (31 percent) of visitors did not plan to apply for a permit in 1989, primarily because of a desire to see a new area (Fig. 10). Half of this group planned on seeing an area they had not yet visited. Another 25 percent were prevented from returning by other factors, and 8 percent said they would not return because the area is too crowded. Other reasons were a desire to visit outside the permit season (7 percent), objections to wilderness-use rationing (5.5 percent) and objections to the cost of permits (4 percent).

Of those visitors who planned to apply for a different time of year, only 13 percent sought to improve their chances of getting a permit (Fig. 11). The most common reason for visiting at a new time of year was a desire to see the Enchantments in a different season. Other common reasons were better weather, fewer crowds, and companions' ability to schedule the trip.

Responses to Denial of a Permit (Substitution and Displacement)

Current use quotas for the Enchantments allow the Forest Service to honor the vast majority of requests for overnight permits, so the sample size for analyzing substitution behavior is not large. The initial sample of rejected applicants contained 41 people, 38 of whom participated in the survey. However, the survey identified 62 people (including the 38 whose permit applications were denied) who indicated that they had been unable to visit the Enchantments as they had originally planned. The larger group includes 29 non-visitors who said their permit requests had been denied, and 39 people who have visited the Enchantments but who said their initial 1988 permit request was rejected. There

are two possible explanations why the survey identified more unsuccessful applicants than did the Forest Service records:

- Some people may have obtained queue permits to camp at Colchuck, Stuart or the Snow Lakes after being told that the Enchantments Core quotas had been filled, but mistakenly answered as non-visitors because they believed the survey only applied to the Enchantments Core. Others in the same situation may have answered as visitors, but said their initial request was denied. In either case, the Forest Service might have categorized them as first-choice recipients since the denied request was only made verbally, and was immediately rescinded.

- Some applicants who successfully obtained a permit may have been unable to visit as they had planned while others in their party were still able to use the permit. The survey sample consisted only of people whose names appeared on permit applications, and they may not be the same as the people who actually used the permit.

Actual substitution/displacement behavior. Respondents whose application was rejected had six options:

- Use the queueing method to acquire a permit for the same date.
- Postpone the trip and reapply for another date.
- Choose an alternative destination within the permit area.
- Visit a substitute destination in a different area.
- Pursue a different activity.
- Make the originally scheduled trip without obtaining a permit.

The distribution of responses is shown in Table 2. Of the people who responded as non-visitors, 38 percent said they visited a different wilderness

area, 31 percent chose a different activity, and 30 percent checked "other."² A second question asked people to elaborate further on their substitute experience, but was not directed solely to those whose permit application was rejected. Of 31 people who answered the second question, about half went on a hiking or backpacking trip to another area, 10 percent went sight-seeing, and 7 percent went to work.

Of the 39 respondents who said they had visited the Enchantments, 26 percent postponed the trip and reapplied for a permit, 33 percent obtained a queue permit, and 36 percent visited a different setting (either inside or outside the permit area). One person reapplied for an Enchantments Core permit, was again unsuccessful, and opted to camp at Snow Lakes. Also, one respondent went to work instead of making a wilderness trip.

Hypothetical substitute/displacement reaction. Additional insight was offered by questions which asked for hypothetical responses to denial of permits (Table 2). Respondents whose requests were granted in 1988 were asked what they would have done if they had not been successful, while non-visitors were asked what they would do if they were to reapply in 1989 and their permit application were rejected.

Successful applicants differed from those who had been initially unsuccessful in that they were less likely to want to make a second

²Of the nine people who checked "other," one didn't specify a substitute experience, seven gave answers which suggested that they didn't understand the question, and one said he had "snuck in" without obtaining a permit.

Table 2. Responses to Permit Denial

Response	Reported Behavior ^a		Hypothetical choice ^b	
	Visitors	Non-visitors	Visitors	Non-visitors
Postpone trip and reapply	28% ^c	--	15%	21%
Try for queue permit	33	--	25	13
Visit without permit	0	--	7	3
Go elsewhere in permit area	13	--	--	--
Visit different wilderness	26	38	51	55
Choose another activity	3	30	2	9
Other ^d	--	31	--	--

^aReported behavior of respondents whose initial application was unsuccessful. N=39 for people who have visited the Enchantments, N=29 for those who had not done so.

^bHypothetical behavior of respondents who successfully obtained permits. N=267 for people who have visited the Enchantments, N=38 for those who had not done so.

^cPercentages add up to more than 100 because one respondent is counted twice. She first reapplied for an Enchantments Core permit, was again unsuccessful, and then chose to camp at Snow Lakes.

^dSee footnote #2 for a description of "other" responses.

attempt to obtain an Enchantments permit, and more likely to choose a substitute setting. Substitute settings were chosen by 51 percent, while about 40 percent would reapply or use the queue system. Only 2 percent would have chosen a different activity. The remaining 7 percent said they would simply visit without obtaining a permit.

Non-visitors were even more likely to favor a substitute setting over making another attempt to obtain a permit. Fifty-five percent would visit a different wilderness, while 34 percent would reapply or use the queue system. Three percent would visit without a permit, and 8 percent would participate in some other activity.

Comparability of experiences. Within three of the four initial-response categories, visitors were asked to compare their planned Enchantments experience with the one they ultimately had. This was not done with persons who obtained queue permits, since they did not seek a substitute experience but instead used a different strategy to obtain a permit for the same experience.

Table 3 compares planned and substitute experiences for people who postponed their trip and reapplied for a permit, and for those who chose a different setting. The only person who chose a different activity was one respondent who went to work on the day he'd planned to visit the Enchantments. He did not consider the experience to be an acceptable substitute. In general, substitute experiences tended to offer the same enjoyment as the trip that was originally planned, especially for respondents whose substitute experience took place within the Enchantments area.

Among those who postponed their trips and reapplied for a permit, the substitute experiences tended to last as long as the original trip and to be

Table 3. Comparison of planned vs. substitute trip

CATEGORY	Postpone & reapply		Different setting ^a		
	N	Percent	N	Percent	
LENGTH OF TRIP					
Shorter	3	38%			n/a
Same length or longer	5	63			n/a
TRAVEL TIME REQUIRED					
Shorter		n/a	3	21%	(30)
Same		n/a	7	50	(30)
Longer		n/a	4	29	(40)
COMPANIONS					
Same companions	5	63%	13	93%	(90)
Different companions	3	38	1	7	(10)
EFFECT OF NEW COMPANIONS					
Change had no effect	2	50%	0	-0-	
Trip was less pleasant	2	50	1	100%	
OVERALL ENJOYMENT OF EXPERIENCE					
More than planned trip	1	14%	1	7%	(0)
Same as planned trip	4	57	7	50	(56)
Less than planned trip	2	29	6	43	(44)
ENJOYMENT OF SUBSTITUTE SETTING					
More than Enchantments		n/a	0	-0-	
Same as Enchantments		n/a	4	31%	(33)
Less than Enchantments		n/a	9	69	(67)

^aFirst set of percentages includes persons who chose a different setting either within or outside the permit area. Percentages in parentheses are for non-Enchantments substitutes only.

enjoyed with the same companions. Those who were displaced to a different resource also tried to go with the same companions. A majority chose substitute settings which were located no farther from their homes than the Enchantments.

Substitute settings. Of the 15 respondents who visited a substitute setting, five visited other locations within the permit area, and one did not identify the substitute area. Four people visited other locations in and around the Alpine Lakes Wilderness (Icicle Creek, Mount Daniels, Spectacle Lake, and Tuck and Robin Lakes). Two visited Mount Rainier National Park, and one each went to North Cascades National Park, Smith Rocks (Ore.) State Park, and the Eagle Cap Wilderness.

Effects of wilderness experience and activity preference. Choice of a substitute setting depends partly on situational constraints (e.g., time, distance, companions' needs, skill levels) and partly on the recreationist's knowledge about alternate settings which are capable of offering a similar experience. Enchantments visitors were more likely to know of similar settings if they had higher levels of wilderness experience (Table 4). Overall, about half of the respondents (51 percent) said they knew of no setting offering an Enchantments-like experience. However, while 75 percent of people with one or two years of experience considered the Enchantments unique, only 47 percent of people with six or more years of experience felt that way. Five percent of those with six or more years of experience said that many other areas offer an Enchantments-like experience.

Knowledge of substitutes and response to permit denial both appear to be related to the primary activity enjoyed in the Enchantments. Respondents were less likely to know about settings offering potentially similar wilderness

Table 4. Effect of experience on perceived setting similarity

Years	Percent Responses within Experience Class				N
	Enchantments is unique	Other area(s) in Washington	Other area(s) outside Wash.	Many other areas	
1	83%	8%	8%	-0-	12
2	50	50	-0-	-0-	4
3	89	-0-	11	-0-	9
4	64	27	9	-0-	11
5	57	21	14	7%	14
6-10	41	38	13	8	61
11-20	49	34	15	2	127
20+	49	27	15	9	67

Table 5. Effect of activity on belief that Enchantments is unique

Activity	Enchantments is Unique	Similar Settings Exist	N
	Percent	Percent	
Wilderness camping	58	42	83
Mountain/alpine climbing	40	60	55
Rock climbing	44	56	25
Backcountry hiking	48	52	128
Nature study	-0-	100	1
Fishing	64	36	11
Hunting	-0-	100	2
Photography	40	60	10

Table D-6. Effect of activity on response to permit denial

Primary Activity	Postpone & reapply	Obtain by queueing	Different setting	Different activity	N
Camping	30%	40%	30%	-0-	10
Climbing	50	-0-	50	-0-	10
Hiking	20	47	27	7%	15
Photography	-0-	100	-0-	-0-	1
None specified	-0-	25	75	-0-	4

experiences if their primary activity was fishing (64 percent) or wilderness camping (58 percent). Forty-eight percent of hikers, 41 percent of climbers and 40 percent of outdoor photographers said the Enchantments experience is unique (Table D-5).

There appears to be an inverse relationship between the amount of information people have about potentially similar settings and their willingness to make a second attempt to obtain an Enchantments permit. (Table D-6). Wilderness campers were the least able to name similar settings, and 70 percent of those campers whose permit application was denied chose to reapply for a reserved permit or obtain a permit by queueing. However, only 50 percent of the climbers, who were among the least likely to say the Enchantments is unique, chose to make a second attempt to secure a permit rather than opting to visit a different wilderness setting.

Support for an Extended Permit System

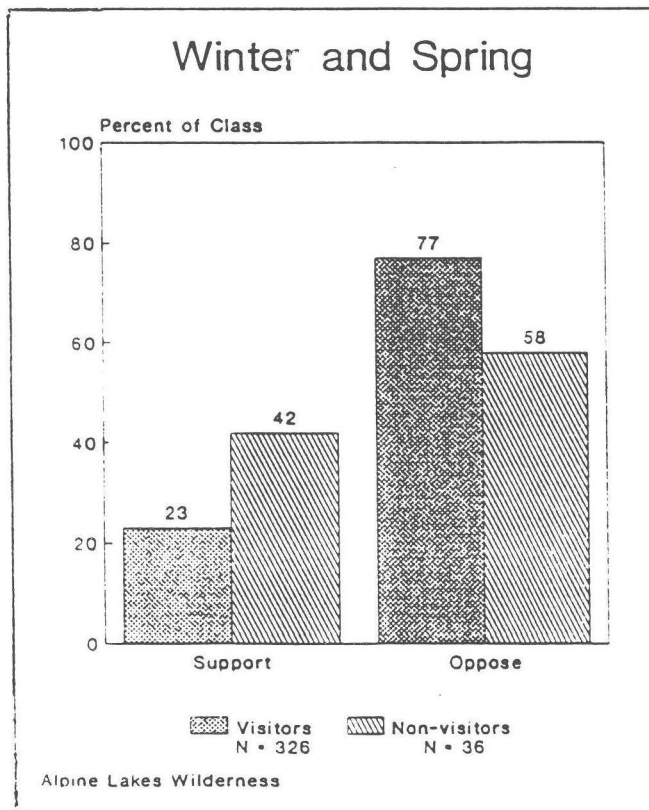
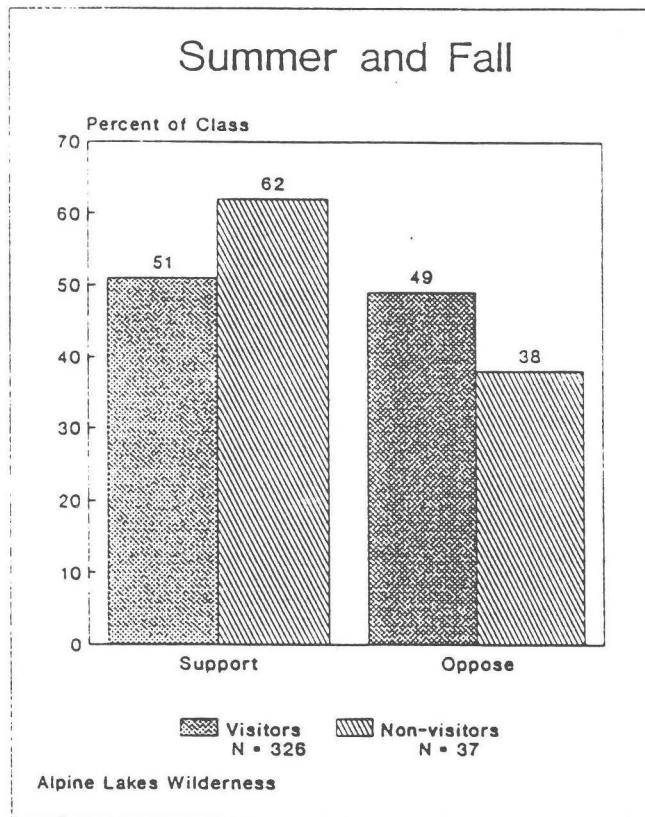
Survey respondents were asked whether use should be limited over the entire Alpine Lakes Wilderness, and whether such limits would be appropriate during both the summer and fall (June 15 to October 15) and winter and spring (October 16 to June 14) periods.

A majority (62 percent) of non-visitors would support use limits covering the entire Alpine Lakes Wilderness during summer and fall (Fig. S-1), but opinion among those who have visited the Enchantments was split evenly between supporters and opponents of an expanded permit system. An expanded permit system was strongly supported by 24 percent of non-visitors and 18 percent of visitors. Strong opposition was registered by 16 percent of non-visitors and 18 percent of visitors.

The two groups responded similarly to use limits during winter and spring. The majority in each group (58 percent of non-visitors and 77 percent of visitors) opposed use limits during these seasons, though opposition was stronger among those who had visited. The idea was strongly opposed by 33 percent of visitors and 25 percent of non-visitors. Fourteen percent of non-visitors and 5 percent of visitors said they strongly supported use limits during winter and spring.

Previous research (Frost and McCool, 1988) had suggested that repeat visitors to a wilderness are more likely to support use limits than persons who have not visited, and therefore have not been able to personally evaluate social and environmental impacts. However, the reverse was true here; persons who had not visited the Enchantments were more supportive of use limits than were those who had.

**Figure 12. Response to
Wilderness-wide Use Limits**



Visitor and Visit Characteristics

Demographic profiles of visitors and non-visitors were similar to those found in other studies of wilderness use (see, for example, Hendee et al., 1968; Lucas, 1985). The typical Enchantments respondent was a college-educated male in his 30s who has a higher-than-average income and lives in a city or suburban area in Washington state (Table V-1). No significant demographic differences were detected between people who had visited the Enchantments and those who had not.

Activity participation. Backcountry recreationists typically engage in several different activities during wilderness trips (Roggenbuck and Lucas, 1987), but these activities are not equally important. Therefore respondents were asked to indicate their primary activity when visiting the Enchantments. Backcountry hiking was the primary activity listed by the greatest number of respondents (Table V-2). Nearly 37 percent of visitors considered themselves hikers, while 27 percent said camping was the primary reason for visiting. Climbing activities accounted for 23 percent of Enchantments visits, and most of the remaining visitors were anglers or photographers. Six percent did not list a primary activity.

Social characteristics of trips. Most people visit the Enchantments in small parties, with 41 percent of respondents traveling in pairs and 28 percent in groups of three (Table V-3). The average party size is 2.85 people. About half of the parties are groups of friends, and 28 percent of the remainder are combined friend/family groups.

Temporal/seasonal characteristics of trips. The average length of an Enchantments trip for survey respondents was 3.3 days. This figure is somewhat higher than the average calculated from permit application

Table 7. Demographic profiles of visitors and non-visitors

Variable	Non-visitors (n=42)	Visitors (n=346)	Test Statistic ^a	Signif.
Age	38	37	0.41	NS
Sex (percent male)	68%	77%	1.29	NS
Household income	\$43,950	\$43,900	0.04	NS
Number of children	1.07	0.97		NS
Marital status				
Single	44%	36%		
Married	54%	55%	5.26	NS
Separated/divorced	2%	9%		
Level of education				
Some high school	5%	1%		
High school diploma	5%	5%		
Some college	15%	19%	3.31	NS
Bachelor's degree	39%	41%		
Advanced degree	37%	34%		
Size of hometown				
Farm or rural area	2%	8%		
Small town	5%	8%		
Small city	37%	27%	5.94	NS
Large city	39%	41%		
Suburb of large city	17%	16%		
Location of hometown				
Chelan/Kittitas counties	19%	17%		
Puget Sound area ^b	55%	66%		
Other Washington	10%	9%	6.52	NS
Oregon	10%	3%		
Elsewhere	10%	5%		

^aT-tests were used to compare means for age, sex, income, children.

Chi-square tests were used to compare frequency distributions for marital status, education, hometown size and hometown location.

^bIncludes Whatcom, Skagit, Snohomish, King, Pierce, Thurston and Kitsap counties.

Table 8. Primary recreational activities of Enchantments visitors

Activity	N	Percent
Wilderness camping	94	27
Mountain/alpine climbing	55	16
Rock climbing	25	7
Backcountry hiking	127	37
Nature study	1	0.3
Fishing	11	3
Hunting	2	0.6
Photography	10	3
(Did not answer)	20	6

Table 9. Social characteristics of Enchantments trips

	N	Percent
PARTY SIZE (Mean = 2.85)		
One person	23	7
Two persons	140	41
Three persons	95	28
Four persons	47	14
Five persons	19	6
Six persons	9	3
PARTY TYPE		
Family members	50	16
Friends	160	51
Both family and friends	91	29
Members of a club	8	3
Business associates	2	0.6

data, because the survey tended to under-sample day users (see Methods). Some seasonal variation in trip length was reported (Table V-4). Summer trips typically average half a day longer than fall and winter trips, and a full day longer than springtime trips. Nineteen percent of respondents said they made day trips during 1988 (compared to 37 percent of all permit-holders). Day trips are more likely to occur in spring or winter than summer or fall.

Although more than a third of respondents reported taking extra time off from work to visit the Enchantments, most people visit during their regular days off and/or scheduled vacation time. Nearly 40 percent of users normally visit on weekends (44 percent when holiday weekends are included), and 15 percent visit during their vacations. Of the 113 people who said they took time off to visit the Enchantments, 57 percent gave up some income to do so.

August is the month when the greatest amount of use occurs, but visitors were slightly more likely to prefer September for visiting the Enchantments (Table V-5). The only months in which visits were made by more than 10 percent of the respondents were July, August, September and October. Fewer than 2 percent visited between November and March. More people had visited in May than in June, although the difference is small (10 percent in May, 8 percent in June). Nearly 90 percent visited at least once during the season when permits are required.

Respondents were also asked to give reasons for their seasonal preferences (Table V-6). Weather was cited as a reason by 69 percent of the respondents, and nearly half said they like to visit when the larch trees are in their fall foliage. Other more commonly cited reasons for choosing a particular month were: lack of crowding (28 percent), better climbing conditions (27 percent), and lack of insects (22 percent). Only 8 percent

Table 10. Seasonal variation in length of Enchantments trips

Length of trip	Spring	Summer	Fall	Winter
One day or less	16%	9%	10%	12%
Two days	38	15	22	28
Three days	27	28	35	28
Four days	8	23	22	12
Five days	4	15	5	8
Six days or more	6	10	7	12
Mean trip length (days)	2.8	3.8	3.2	3.2

Table 11. Actual vs. preferred timing of visits

Month	Preferred Season ^a (%)	Actual visits in 1988 (%)
January	4	0.3
February	4	1
March	4	1
April	7	5
May	16	10
June	25	8
July	46	25
August	61	38
September	64	33
October	39	17
November	6	2
December	3	1
N	339	316

^aProportion of survey sample indicating that they had visited, or would like to visit, during each month.

Table 12. Reasons for seasonal preferences

Reason	Percent	N
Weather conditions are better	69	232
The area isn't as crowded	28	95
Permits aren't required	8	26
The bugs aren't out	22	75
I have more time for trips	19	65
Climbing conditions are better	27	92
Companions can only visit then	9	31
Fishing/hunting season is open	10	34
Easier to find a good campsite	6	20
Larch is in fall colors	45	150
Wildflowers are in bloom	21	70

said they had deliberately chosen months in which permits are not required.

Although permit applications are often mailed a month or more ahead of time, a majority of respondents (55 percent) said they don't make a final decision on whether to visit the Enchantments until the day of the trip. If weather is the primary factor in choosing a season to visit the Enchantments, it is also likely to be a major factor when deciding whether to take or cancel a trip. Only 5 percent of respondents said they would cancel an Enchantments trip due to cool, chilly weather, but 60 percent would do so because of heavy rain, and 52 percent because of snow. Eighteen percent said they would never cancel an Enchantments trip because of weather.

Overall wilderness use. Most Enchantments visitors appear to devote considerable leisure time to wilderness recreation (Table 13). More than 95 percent of respondents reported visiting at least one other wilderness setting besides the Enchantments in a typical year, with a majority saying they visit at least three other areas annually. Enchantments users reported making an average of 7.4 wilderness trips per year, with 19 percent making more than 10 trips annually. Most people (83 percent) visit the other wilderness settings during the same season as when they visit the Enchantments. Respondents had an average of 15.5 years of wilderness recreation experience, and had been visiting the Enchantments for an average of six years.

Despite their broad experience in backcountry recreation, 51 percent of the respondents said they knew of no other setting that offers a wilderness experience similar to the Enchantments, suggesting that the area has unique qualities. Among those who did list one or more similar settings, locations in the North Cascades region (e.g., Pasayten Wilderness, North Cascades National Park) were mentioned more often than any others. Ten percent of the

Table 13. Overall wilderness recreation patterns

	N	Percent
WILDERNESSES VISITED ANNUALLY		
Only the Enchantments	15	5
Enchantments and 1-2 others	117	36
Enchantments and 3-5 others	143	44
Enchantments and >5 others	52	16
TRIPS PER YEAR (Mean = 7.4)		
One trip only	41	12
Two trips	44	13
Three trips	41	12
Four or five trips	74	22
Six to 10 trips	76	22
Eleven or more trips	63	19
WHEN OTHER VISITS OCCUR		
Same season as Enchantments trips	264	83
Different seasons	55	17
ENCHANTMENTS EXPERIENCE (Mean = 5.9 years)		
One year	122	36
Two years	32	9
Three years	34	10
Four or five years	36	11
Six to 10 years	49	14
Eleven to 20 years	60	18
More than 20 years	9	3
SETTINGS COMPARABLE TO ENCHANTMENTS		
None, Enchantments is unique	158	51
Many other areas	15	5
Elsewhere in Alpine Lakes	31	10
Setting(s) in North Cascades	42	14
Setting(s) in South/Central Cascades	12	4
Setting(s) in Sierras	13	4
Setting(s) in Rockies	15	5
Setting(s) in Olympics	7	2
Setting(s) in Wallowas	7	2

respondents listed other parts of the Alpine Lakes Wilderness. Five percent said many other areas were similar.

Perceptions of social impacts. When asked to choose the best definition of the Enchantments experience from a list of five choices, respondents were split evenly between those who consider the area "wilderness" or "semi-wilderness," and those who believe that the experience lies somewhere between a wilderness-like trip and a visit to a developed setting. However, when asked to choose the experience they would prefer to have in the Enchantments, 72 percent chose a wilderness or semi-wilderness experience (Fig. 13).

Although 89 percent said the Enchantments had offered their preferred experience at one time, only 71 percent said it had done so in 1988. A majority of respondents (57 percent) said they have noticed a change in the type of recreation experience offered in the Enchantments during the years they have been visiting the area. However, 66 percent of those who have noticed a change said that the change wasn't enough for them to want to go elsewhere to enjoy the type of experience they prefer. Half of those who did feel a need to go elsewhere said there are too many people in the Enchantments. However, another third of that group said they feel that they must go elsewhere because they object to the permit system.

Respondents were also asked to indicate on a nine-point scale how crowded they felt on their most recent Enchantments trip (Fig. 14). The mean response was 3.24, or "slightly crowded." More than half (56 percent) reported feeling at least slightly crowded, and 25 percent said they felt at least "moderately crowded" on their most recent visit, even though the vast

Figure 13. Definition of Experience
Current vs. Preferred, 1988.

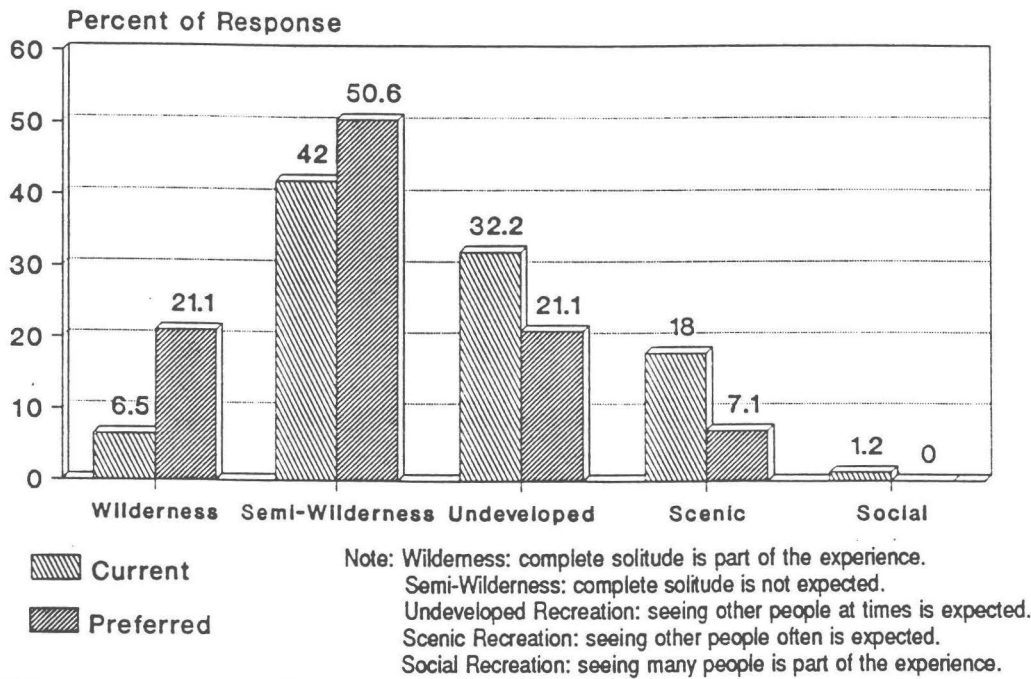
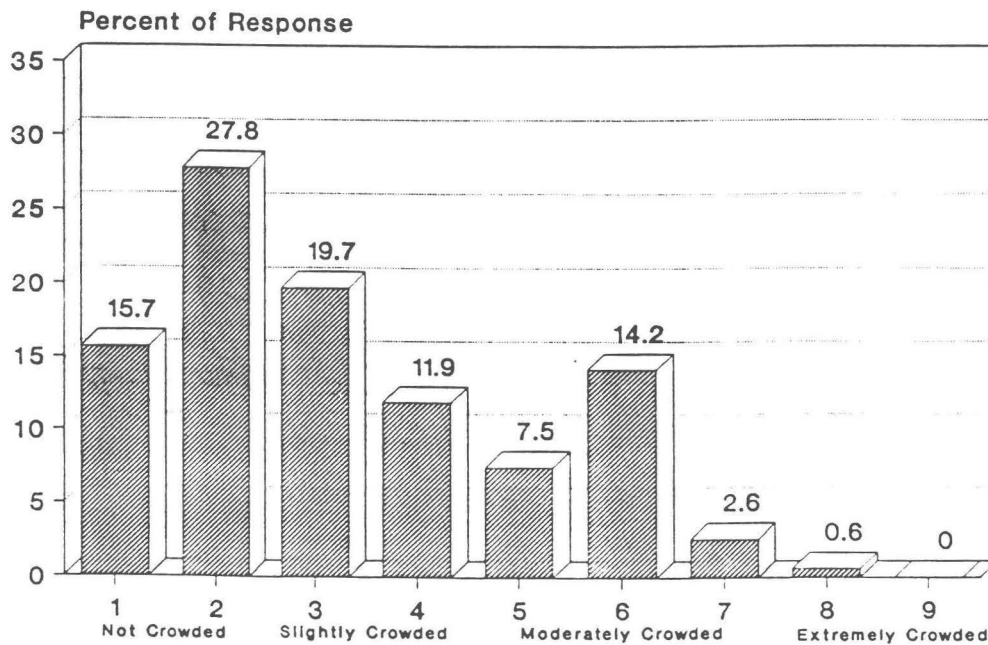


Figure 14. Perceived Crowding
Enchantments Area, 1988.



majority had been to the Enchantments since the permit system was instituted in 1987. Over the past dozen years, this nine-point crowding scale has been used in some 40 studies of various outdoor recreation activities, covering at least 60 settings (Shelby et al., 1989b). The percentage of respondents who were at least slightly crowded was higher in the Enchantments than in any other backcountry hiking area studied (Table 14).

Table 14. Comparison of perceived crowding in various recreation settings

Percent Reporting the Experience as Crowded	Population	Resource	State	Resource Conditions
100	Boaters	Deschutes River	OR	Weekends Section 1
97	Boaters	Deschutes River	OR	Weekends Section 4
94	Anglers	Colorado River	AZ	Thanksgiving weekend
91	Boaters	Raystown Lake	PA	On the lake
89	Pheasant Hunters	Bong	WI	Opening day
88	Boaters	Deschutes River	OR	Weekdays Section 1
88	Boaters	Deschutes River	OR	Weekdays Section 4
87	Riparian Landowners	Lake Delavan	WI	Overall rating
86	Goose Hunters	Grand River Marsh	WI	Firing line
85	Pheasant Hunters	Public Hunting Area	WI	Opening day
76	Trout Anglers	Gun Powder River	MD	Opening day
75	Salmon Anglers	Waimakariri River	NZ	
75	Boaters	Raystown Lake	PA	At attraction sites
74	Salmon Anglers	Rakala River	NZ	At river mouth
73	Canoeists/Boaters	BWCA	MN	Moose Lake
72	Rafters	Grand Canyon	AZ	1985 Summer
70	Anglers	Klamath River	CA	
70	Climbers	Mt. McKinley	AL	
69	Boaters	Door County	WI	
68	Rafters	Rogue River	OR	
68	Rock Climbers	Seneca Rocks	WV	
66	Boaters	Raystown Lake	PA	At put-in location
63	Boaters	Raystown Lake	PA	At take-out location
62	Deer Hunters	Sandhill	WI	1988 High density hunt
61	Goose Hunters	Fishing Bay	MD	Firing line
61	Floaters	Wolf River	WI	
59	Salmon Anglers	Rakala River	NZ	All anglers
57	Deer Hunters (Muzzle)	State-wide	MD	No specific resource
56	Enchantment visitors			
55	Deer Hunters (Bow)	State-wide	MD	No specific resource
55	Wildlife Photographers	Sandhill	WI	
54	Recreationists	Lake Delavan	WI	One day visit
53	Deer Hunters (Gun)	State-wide	MD	No specific resource
53	Anglers	Brule River	WI	1975
53	Rafters	Grand Canyon	AZ	1985 Winter
53	Rafters	Snake River	OR	in Hell's Canyon
53	Backpackers	Mt. Jefferson Wilderness	OR	
52	Canoeists	Brule River	WI	1975 Higher use
50	Deer Hunters	Sandhill	WI	1977 High density hunt
49	Backpackers	Eagle Cap Wilderness	OR	
48	Pheasant Hunters	Bong	WI	Late season
46	Deer Hunters	State-wide	WI	No specific resource
45	Salmon Anglers	Rakala River	NZ	Upstream
44	Turkey Hunters	State-wide	MD	No specific resource
43	Tubers	Brule River	WI	1975
42	Sailboaters	Apostle Islands	WI	1985
41	Tourists/Drivers	Stockings Park	MI	
39	Backpackers	White Mt. Nat. For.	NH	Presidential Range
38	Floaters	Klamath River	CA	
37	Canoeists	Brule River	WI	1985 Lower use
32	Anglers	Colorado River	AZ	Midweek
31	Hikers	Dolly Soda Wilderness	WV	Low use period
27	Goose Hunters	Tuckahoe State Park	MD	Low density dispersed hunt
26	Rafters	Illinois River	OR	
25	Trout Anglers	Savage River	MD	Lower use period
24	Backpackers	Great Gulf Wilderness	NH	Low use period
24	Deer Hunters	Sandhill	WI	1977 Low density hunt
23	Trout Anglers	Gun Powder River	MD	Late season
17	Goose Hunters	Grand River	WI	Managed hunt
12	Deer Hunters	Sandhill	WI	1983 Low density hunt

PERMIT APPLICATIONS AND USE LEVELS

This chapter describes information on use levels and visitor characteristics compiled by the Wenatchee National Forest from permit application data. Included are data for 1988, plus some 1987 data used for comparison and as potential indicators of trends that may interest wilderness managers.

1988 Use Levels

Applications for permits. In 1988, the Leavenworth Ranger District received 2,232 applications for permits to visit the Enchantments area (Fig. 15). The Enchantments Core was the most frequently requested destination, with 41 percent of applicants seeking a permit for that area. Colchuck, Stuart, and Snow Lakes were the destinations for 21, 20 and 18 percent of applicants, respectively. Only 30 applications (1 percent) were rejected, and nine of those applicants ultimately obtained permits.

Applicants showed up to claim 93 percent of the permits that were granted (Table 15). Of the 150 permits that were not claimed, 73 percent were for the Enchantments Core. Twelve percent of all Enchantments Core permits were unclaimed, compared to 2-4 percent for the other three areas.

The 2,232 permit requests represented 6,233 potential visitors (Table 16). Subtracting no-shows and rejected applications, the visitor count for the 1988 permit season is 5,671 (Fig. 16). However, actual use levels are somewhat higher, as Enchantments managers believe that a sizeable number of day users fail to obtain permits.

Figure 15. Permit Applications
by Area, 1988 Season

2232 Total Applications

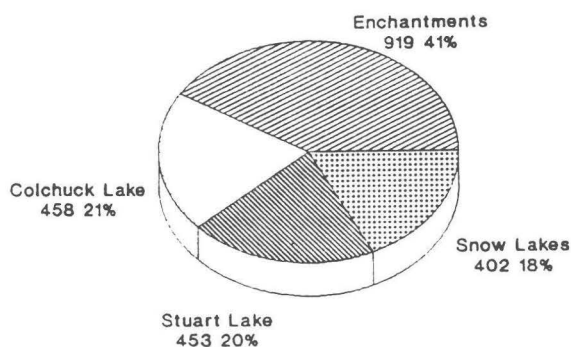


Table 15. Summary of Permit Applications; Leavenworth District, USFS.
1988 Permit Season

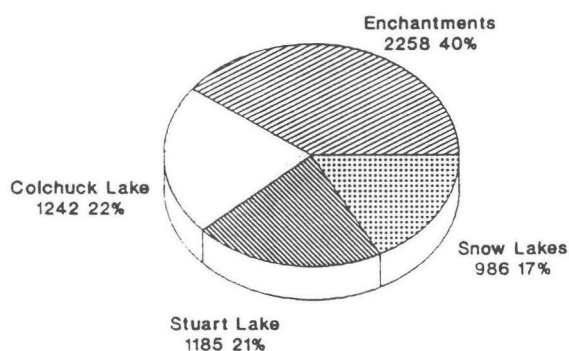
Visitor's Permit Status	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Granted	890	96.8	457	99.8	453	100	402	100	2202	98.7
Rejected	29	3.2	1	0.2	0	--	0	--	30	1.3
Granted, Showed	781	87.8	442	96.7	443	97.8	386	96.0	2052	93.2
Granted, No show	109	12.2	15	3.3	10	2.2	16	4.0	150	6.8

1987 Permit Season

Visitor's Permit Status	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Granted	849	100	424	100	443	100	406	100	2122	100
Rejected	0	--	0	--	0	--	0	--	0	--
Granted, Showed	785	92.5	413	97.4	441	99.5	393	96.8	2032	95.8
Granted, No show	64	7.5	11	2.6	2	0.5	13	3.2	90	4.2

**Figure 16. Number of Visitors
by Area, 1988 Season**

5671 Total Visitors



Number of visitors as per permits

Table 16. Number of Visitors Summary, Enchantments Area.¹
1988

Visitor's Permit Status	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Granted	2594	96.1	1278	99.8	1216	100	1036	100	6124	98.3
Rejected	106	3.9	3	0.2	0	--	0	--	109	1.7
Granted, Showed	2258	87.0	1242	97.2	1185	97.5	986	95.2	5671	92.6
Granted, No show	336	13.0	36	2.8	31	2.5	50	4.8	453	7.4

1987

Visitor's Permit Status	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Granted	2310	100	1088	100	1245	100	1051	100	5694	100
Rejected	0	--	0	--	0	--	0	--	0	--
Granted, Showed	2094	90.6	1047	96.2	1241	99.7	1006	95.7	5388	94.6
Granted, No show	216	9.4	41	3.8	4	0.3	45	4.3	306	5.4

¹ Figures do not include those visitors who entered without a permit.

Types of permits granted Day-use permits accounted for 38 percent of the total issued for 1988. Of the remaining 62 percent, roughly half went to persons who used the reservation system and half to campers who applied on a queue basis (Table 17). However, wilderness managers estimate that as many as 40 percent of day users do not acquire permits before visiting, therefore day use may account for as much as half of all visits during the permit season (Denny McMillin, pers. comm.).

Colchuck and Stuart Lakes received the most day use, accounting for 29 and 32 percent, respectively, of all day-use permits. Twenty-five percent of day-use permits were for Snow Lakes, and only 13 percent for the Enchantments Core.

Two-thirds of the persons who reserved permits ahead of time sought to camp in the Enchantments Core. Fifteen percent of reserved permits were for Colchuck Lake, 9 percent for Stuart Lake, and 11 percent for the Snow Lakes. Among queue applicants, slightly less than half (47 percent) of the permits were for the Enchantments Core, with the remainder spread evenly between Colchuck, Stuart, and Snow Lakes.

Nearly all applicants who used the reservation system received their first choice of dates (Table 18). Six percent of reserved permits were granted for the applicant's second-choice trip date, and three percent for the third-choice date. The percentages of claimed and unclaimed permits were essentially the same for first-, second-, and third-choice dates. Approximately 78 percent of all reserved permits for each choice class were claimed and used (Fig. 17).

Rejected applications All but one of the 30 rejected applications were for the Enchantments Core, for which 3 percent of all applications

Table 17. Granted Permit Applications by Type; Leavenworth District.
1988 Permit Season

Type of Permit	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Reservation	452	50.8	101	22.1	59	13.0	73	18.1	684	31.1
Queue	331	37.2	116	25.4	131	28.9	120	29.9	698	31.7
Day Use	107	12.0	240	52.5	263	58.1	209	52.0	820	37.2

1987 Permit Season

Type of Permit	Area								Total	
	Enchantments		Colchuck		Stuart		Snow			
	n	%	n	%	n	%	n	%	n	%
Reservation	406	47.8	82	19.3	46	10.4	39	9.6	573	27.0
Queue	374	44.1	131	30.9	125	28.2	120	29.6	750	35.3
Day Use	69	8.1	211	49.8	272	61.4	247	60.8	799	37.7

Figure 17. 1988 Permits
by Trip Date Choice

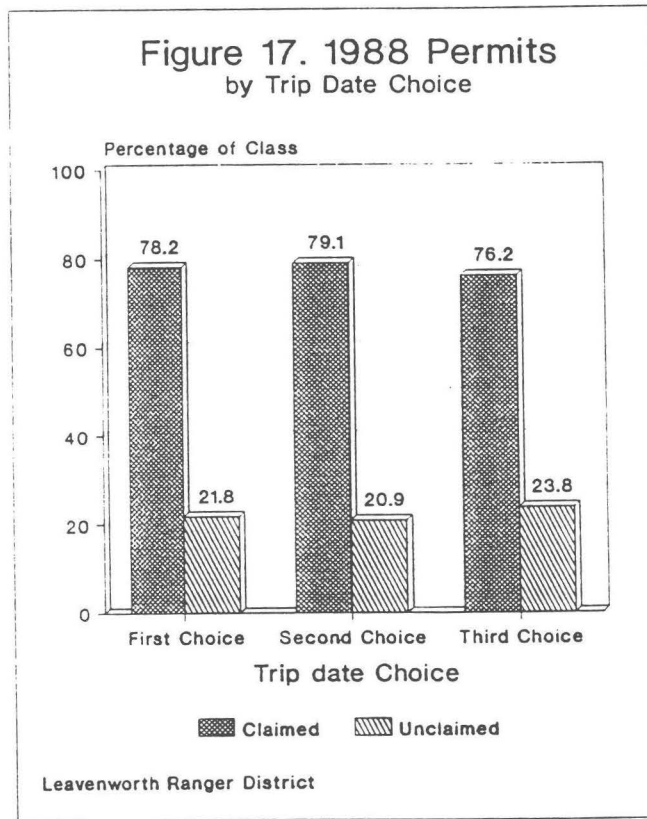


Table 18. Reservation-type Permits by Trip-Date Choice: Claimed and Unclaimed Permits, 1988; Leavenworth District, USFS.

Trip Date Choice		Area								Total	
		Enchantments		Colchuck		Stuart		Snow			
		n	%	n	%	n	%	n	%	n	%
1st	Claimed	294	75.6	85	85.0	49	84.5	57	78.1	485	78.2
	Unclaimed	95	24.4	15	15.0	9	15.5	16	21.9	135	21.8
2nd	Claimed	33	78.6	1	100	0	--	0	--	34	79.1
	Unclaimed	9	21.4	0	--	0	--	0	--	9	20.9
3rd	Claimed	16	76.2	0	--	0	--	0	--	16	76.2
	Unclaimed	5	23.8	0	--	0	--	0	--	5	23.8

were denied. Of the 458 Colchuck Lake applications submitted, only one was denied. The rejected applications included requests for entry on every day of the week, although most (63 percent) of the rejected applications were for parties wanting to enter the Enchantments on a Friday or Saturday. Friday was the most difficult day to enter, with 11 permits rejected (37 percent of the total). The days when rejection was least likely were Sunday and Wednesday, with one rejection each.

Nine of the 30 rejected applicants were able to ultimately obtain a permit. Three were displaced in time, opting to visit on a different day than they had originally planned. One party obtained a permit by choosing a new destination, and one chose both a new destination and a new entry date. Three parties used the queue method to obtain a permit for their preferred date and destination (including two who entered on Fridays), and the last party secured a permit by shortening their trip one day.

Comparison of 1987 and 1988

The number of permits granted rose by 4 percent during the second year of the use-rationing system, from 2,122 permits in 1987 to 2,202 in 1988 (Table 15). Furthermore, 1988 was the first year in which permit applications were rejected. The number of unclaimed permits also rose, from 4 percent in 1987 to 7 percent in 1988. In both years, permits for the Enchantments Core were more likely to remain unclaimed than those for other areas.

The number of permits obtained through the reservation system rose by 19 percent, from 503 in 1987 to 684 in 1988 (Table 17). The reservation system accounted for 31 percent of all permits issued, up from 27 percent in 1987,

while the proportion of queue permits dropped from 35 percent to 32 percent. The proportion of day-use permits remained steady.

The total number of people who received and used their Enchantments permits rose by 5 percent, from 5,388 in 1987 to 5,671 in 1988 (Table 16). This change may not indicate a 5-percent increase in overall use, however, since in 1988 the permit season ran from June 15 until Oct. 15 while the 1987 season began June 1 and ended Oct. 1. Use levels tend to be higher in early October than in early June. The increase in visits is smaller than the increase in permits issued, because the no-show rate rose from 5 percent in 1987 to 7 percent in 1988.

Party size. The average party size in 1988 was 2.8 persons, slightly larger than in 1987. Parties headed for the Enchantments Core tended to be the largest (2.9 persons), while Snow Lakes parties were smallest (2.6 persons). The size of parties headed for Colchuck Lake and the Enchantments Core grew slightly in 1988, while the party size dropped slightly at Stuart Lake.

Length of stay. The average length of stay of all parties was the same (2.6 days) in both 1987 and 1988. In both years, persons visiting the Enchantments Core stayed an average of 3.9 days. Those who visited Colchuck, Stuart, or Snow Lakes stayed an average of 1.8, 1.7, and 1.9 days at each location, respectively.

Comparison of Use Levels and Wilderness Standards

Use of permit quotas kept visitor totals within the Enchantments Core management standard of 60 people at one time (PAOT) on 108 nights, or 88 percent of the 1988 permit season (Table 19). On those nights when the

standard was exceeded, an average of 67 people were present. Use levels exceeded 60 PAOT on 26 percent of the nights during August, the month when use was heaviest.

Because day-use permits are not subject to use quotas, the standard was exceeded more frequently during the day. Daytime impacts remained within the 60 PAOT standard on 63 days (51%) of the season. An average of 79 persons were in the permit area on days when the standard was exceeded. The standard was met during the month of June, but was exceeded at least once during the months of July, August, September, and October. More than 60 daytime visitors were present in the Enchantments Core during 87 percent of the days in August.

In general, the standard was exceeded less often, and to a lesser degree, in 1988 than it had been in 1987. During the first year of the permit season, the standard was exceeded on 14 percent of the nights, by an average of 15 persons. The standard was exceeded slightly less often during the daytime in the first year of the permit system, as use passed the PAOT level on 46 percent of the days compared to 49 percent in 1988. However, the per-day use level fell from 82 persons on days when the standard was exceeded in 1987 to 79 persons on days when it was exceeded in 1988. The standard was more likely to be exceeded on weekends than during the week (Fig. 18).

Fig. 19 shows the average number of visitors in the Enchantments Core by day of the week for each month of the 1988 permit season. Only Mondays in August averaged greater than 60 persons for overnight use, and only Sundays in October averaged a day-use level that exceeded the 60 PAOT standard.

Table 19. Meeting Use-level Standards by Month, Enchantments Core Area.

1988

Time Period	Standard Satisfied				Standard Exceeded			
	Days		Nights		Days		Nights	
	n	%	n	%	n	%	n	%
June 15-30	16	100	16	100	0	-	0	-
July 1-31	20	64.5	30	96.8	11	35.5	1	3.2
August 1-31	4	12.9	23	74.2	27	87.1	8	25.8
September 1-30	12	40.0	25	83.3	18	60.0	5	16.7
October 1-15	11	73.3	14	93.3	4	26.7	1	6.7
Season Total	63	51.2	108	87.8	60	48.8	15	12.2

1987

Time Period	Standard Satisfied				Standard Exceeded			
	Days		Nights		Days		Nights	
	n	%	n	%	n	%	n	%
June 1-30	30	100	30	100	0	-	0	-
July 1-31	15	48.4	28	90.3	16	51.6	3	9.7
August 1-31	4	12.9	20	64.5	27	87.1	11	35.5
September 1-30	17	56.7	27	90.0	13	43.3	3	10.0
Season Total	66	54.1	105	86.1	56	45.9	17	13.9

Figure 18. Enchantments Core Use Levels.

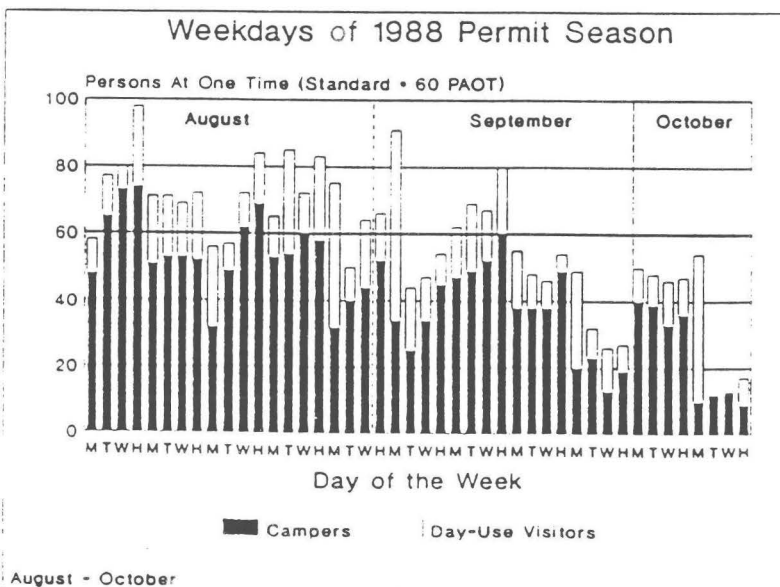
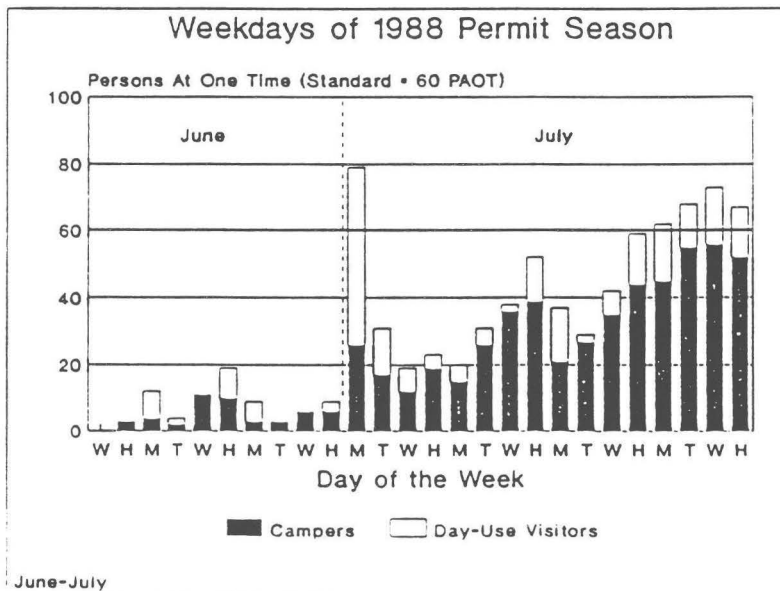
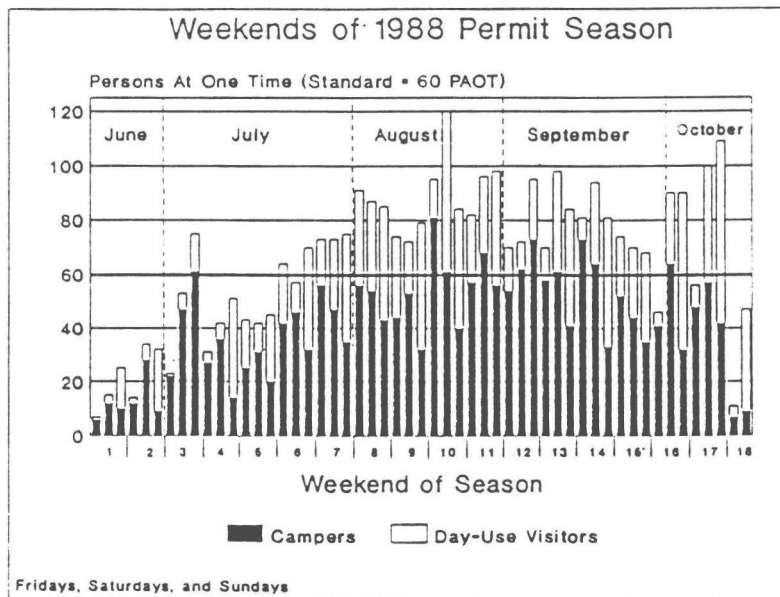
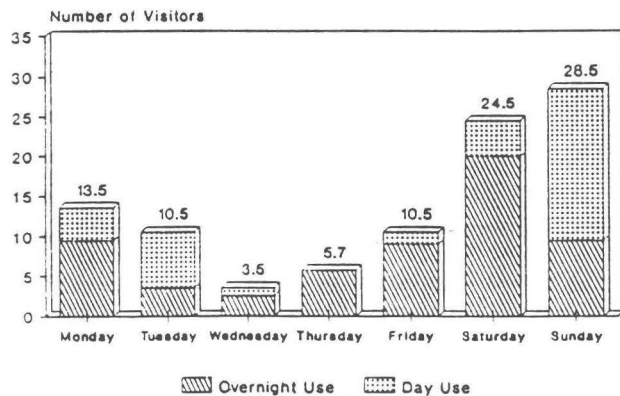


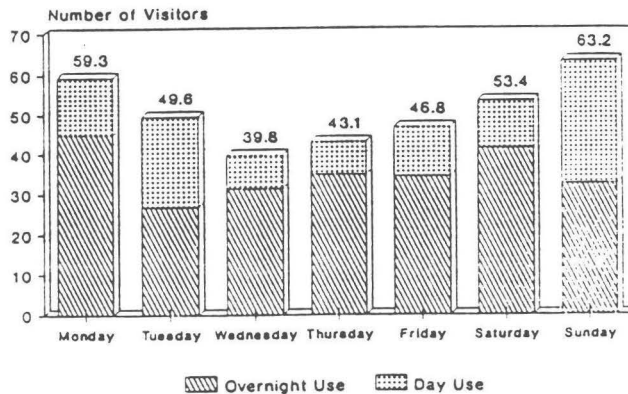
Figure 19. Number of Visitors: Day of the Week Averages by Month.

June 1988



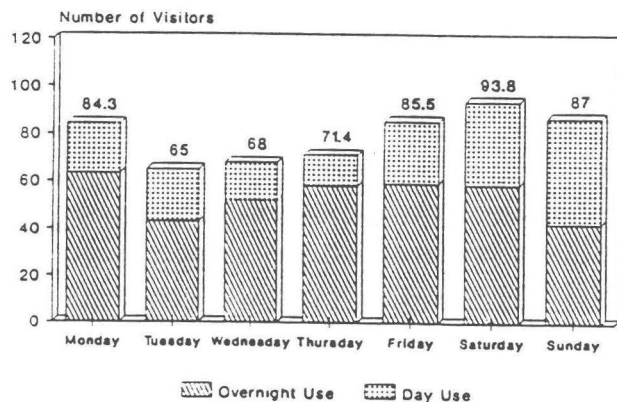
June 15-30, Enchantments Core

July 1988



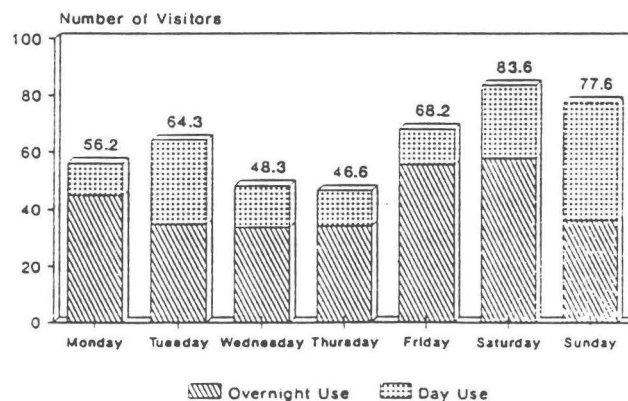
Enchantments Core

August 1988



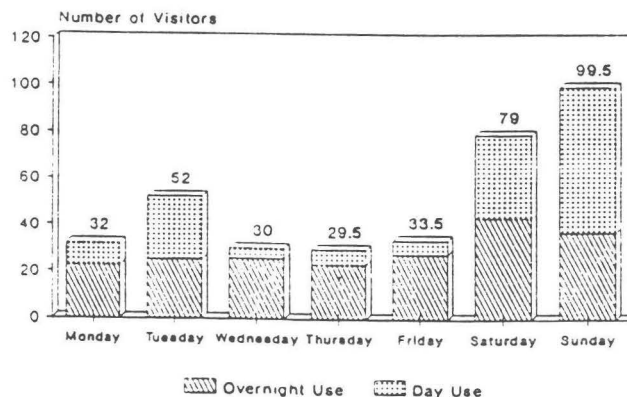
Enchantments Core

September 1988



Enchantments Core

October 1988



October 1-15, Enchantments Core

SUMMARY, CONCLUSIONS AND MANAGEMENT IMPLICATIONS

At the start of this report, four research questions were identified as being keys to evaluating the effects and effectiveness of the wilderness permit system used in the Enchantments area. Those questions were:

- How do prospective Enchantments visitors use the permit system?
- How does the permit system change the ways in which people use the Enchantments area?
- How do users perceive that the permit system has affected their Enchantments experiences?
- How are other recreation areas affected by restrictions on use in the Enchantments which can displace potential visitors to substitute wilderness resources?

This chapter examines the survey results and Forest Service permit data in the context of those questions. Management implications of the research findings are discussed, along with an evaluation of the overall effectiveness of the permit system.

Present and Future Use of the Permit System

Persons who decide to visit the Enchantments for wilderness recreation can respond to the permit system in any of five ways. They may choose to reserve an overnight camping permit in advance of their planned trip date; make the trip without a reservation in hopes of obtaining a queue permit; spend the night outside the permit area and visit only during the day; visit outside the permit season; or visit without obtaining a permit. Although it is more difficult to identify and survey people in the latter two categories,

evidence suggests that most people are choosing an option which involves using the permit system.

Nearly 90 percent of respondents visited during the permit season. Of those who did not, only 20 percent (six people) scheduled their trips specifically to avoid the permit system. Nor is there much evidence of deliberate non-compliance among overnight campers. Although the survey reached most people who had been cited for permit violations, only half of the respondents who acknowledged having camped without a permit said they did so because they disapproved of the permit system. The Forest Service estimates that as many as 40 percent of day-users may not be getting permits, but it is not known whether non-complying day users are deliberately circumventing the system, or simply don't know that permits are required.

Of the people who do obtain permits, slightly more than a third are day users. The remainder are split roughly evenly between those who used the reservation system, and those who obtained permits by queueing. That ratio differs considerably from the Forest Service policy, which makes 75 percent of the permits available to people who want to reserve their permits.

Nearly half of the survey respondents said they were likely to make a second attempt to obtain a permit if their permit application were rejected. A similar percentage of the unsuccessful applicants in 1988 made second attempts to get permits. A majority of these attempts are likely to be for queue permits. Repeat applicants in 1988 were more likely to use the queueing method than to reapply for reserved permits. And of those who were successful in 1988 but said they would reapply if they had not been successful, two-thirds said they would have used the queueing method. Queueing is often the only option for applicants whose trip dates are not flexible -- e.g., those

who must visit during previously scheduled vacations, or who are traveling with several people having varying demands on their time. Furthermore, since a majority of reservation applications are made no more than a month in advance, it may not be practical for most unsuccessful applicants to reapply for a reserved permit.

If the number of rejected applications increases, then, there may be more competition for queue permits. However, there may also be more queue permits available, since the no-show rate is likely to increase as people adopt strategies such as multiple applications or option planning to increase their chances of getting a permit. (A detailed discussion of permit acquisition strategies is offered below.) Applicants will also tend to apply farther in advance, and thus may have more time to reapply for reserved permits. Already people are more likely to use the reservation method if they plan to visit the Enchantments Core than if they plan to visit one of the outlying lakes, probably because there is greater competition for sites in the Enchantments Core.

A similar policy of allocating 75 percent of the quota for reserved permits and 25 percent for queue permits has been used in California's San Jacinto Wilderness since 1973. When the San Jacinto permit system was first introduced, only a third of visitors reserved permits ahead of time (Stankey, 1979). Fifteen years later, the vast majority of prospective visitors try to reserve their permits ahead of time (Bill Johnson, pers. comm.). The current Enchantments situation is similar to that in San Jacinto in the mid-1970s. Although two years do not constitute a trend, there has been movement toward greater use of the reservation method among Enchantments visitors (from 27 percent in 1987 to 31 percent in 1988).

Not only are people more likely to use the reservation method to secure permits for the Enchantments Core than for other parts of the permit area, but 97 percent of the rejected applications were for the core area. This occurred even though the 20 PAOT nightly quota for the Enchantments Core area allows more campers than the four- and five-party quotas set for the other areas. (With parties averaging 2.9 people in size, six parties can be admitted nightly to the Enchantments Core.)

There may be several reasons why competition is greater for permits to camp in the Enchantments Core. One reason is that the core area is seen by many as a superior setting. Another is its distance from the trailheads; while day-use permits are frequently issued for the other destinations, permits for the Enchantments Core are almost always issued to overnight campers. A third potential reason may be that some campers seem to confuse the Enchantments Core with the Enchantments permit area (as suggested by some of the survey responses). While the need for permits to camp in the Enchantments has been well-publicized, some people may not know that permits are also required for Colchuck, Stuart or the Snow lakes. If so, the number of applications for areas outside the core may increase faster over the next few years than the number of requests than for the core itself, as more campers become acquainted with the system.

Currently, the demand for permits rarely exceeds the supply. No applications were rejected in 1987, and only 30 (3 percent of the total) were rejected in 1988. Nine of those parties were later able to obtain permits, either by changing their plans or using the queue method. Even the small number of rejections in 1988 cannot be seen as an indicator of increased demand, since the daily quota for Enchantments Core permits was actually cut

by 20 percent (from 25 PAOT to 20 PAOT) after the 1987 season (USDA Forest Service, 1987). The total number of visitors rose by 5 percent, but this increase is easily explained by the change in permit season dates from June 1-Oct. 1 to June 15-Oct. 15.

Although the permit system has so far been able to meet the demand for permits, the number of rejected applications is likely to increase annually, at least for a while. The area attracts a large proportion of repeat visitors: Nearly 65 percent of 1988 visitors had visited prior to 1988, and 70 percent plan to apply again in 1989. A majority of non-visitors also plan to reapply in 1989. Assuming that a normal number of newcomers are attracted to the area, the number of permit applications is likely to increase, and so will the number of rejected applications.

As that occurs, new strategies for obtaining permits are likely to be used. These strategies may include:

- Duplicate application. River managers are familiar with the phenomenon by which all members of a party apply for a permit in hopes that at least someone will receive one (McCool and Utter, 1982). This strategy is best suited for a lottery allocation system, and no Enchantments survey respondents reported using it in 1988. However, people may begin to do so if they perceive that their chances for a permit will be enhanced. This is certainly true if competition grows fierce enough that permits for peak times such as the Labor Day weekend are reserved on the first day that applications can be submitted. When duplicate applications are submitted, only one is picked up. The others are classified as no-shows, and become available for people who obtain permits by queueing.

- Longer lead time. As news of rejected applications spreads, campers will begin to apply earlier in the year and will be less likely to attempt to get queue permits. For example, while 25 percent of 1988 permit holders made their applications a month or more ahead of time, 62 percent of non-visitors (many of whom failed to obtain permits in 1988) said they planned to make their 1989 applications that far in advance. Longer advance planning tends to increase no-show rates, since there is more time before the trip date in which campers' plans can change. Even now, reserved-permit applications are made an average of 40 days in advance, while the actual decision on whether to make the trip doesn't occur until 5.6 days beforehand.

- Option planning. A related strategy is to apply for a permit early, just in case a trip to the Enchantments is feasible. There is a significant minority of visitors who chafe at the need to schedule their trips ahead of time. This group can easily obtain queue permits under current demand conditions, but if competition for permits increases, they may feel forced to apply through the reservation system even though they have little idea whether they'll actually be able to make the trip. Like the two previous strategies, this leads to higher no-show rates.

- Increased party size. Another strategy which has been employed by river recreationists (McCool and Utter, 1982) is for people to hook up with other parties, on the theory that permits are issued to parties rather than to individuals. It is too soon to identify a trend, but there was a slight increase in average party size between 1987 and 1988, particularly in the Enchantments Core where permits are toughest to get. If this continues, there will be a reduction in the number of parties admitted to the Enchantments Core, where the use quota is determined by the number of people, but there may

be an increase in overnight use at the other areas where quotas are determined by the number of parties.

- Camping in peripheral areas (within-setting displacement). Even though day users rarely obtain permits for the Enchantments Core, use levels in this area during the day are often twice as great as at night. The reason is that many people who want to visit the Enchantments Core are obtaining permits to camp at one of the three other locations, and hiking into the core area during the day. Forest Service personnel have encouraged this strategy in contacts with permit applicants. This practice offers a way to avoid having to turn away Enchantments Core visitors while simultaneously maintaining low levels of camp encounters. However, it may lead to unsatisfactory levels of daytime encounters on trails in the core area.

- Displacement in time. In another example of within-setting displacement, people may choose to visit at a less popular time of year or to enter on a less popular day of the week. Only 13 percent of the survey respondents who plan to visit at a different time of year in 1989 said they would do so to enhance their chances of getting a permit. As permits become more difficult to obtain, however, more users are liable to be displaced to the first month of the permit season when use is now fairly light. The other strategy, entry on different days, may be adopted quite readily. Nearly two-thirds of rejected applications were for entry on Friday or Saturday, while Wednesday and Sunday entries were denied only once each. Wilderness managers may want to encourage prospective visitors to schedule their trips for low-use days or earlier in the season, just as they are now encouraging people to stay at one of the outlying lakes.

Changes in Use of the Enchantments

The biggest change in use of the Enchantments is the one reported after the first permit season: Visitor totals dropped by two-thirds between 1985 and 1987 (USDA Forest Service, 1987), even though no permit applications were rejected that year. Probably it is inaccurate to attribute the entire decrease to the permit season, but neither is it possible to say that it occurred entirely independent of the permit season.

Earlier in this report, it was suggested that the reduction in use may be partly due to unwillingness of some people to use the permit system, ignorance of how the permit system works, inaccurate estimates of prior use, and/or nationwide trends away from overnight wilderness trips. The research suggests a fifth possibility: The reduction in use may be a continuing reaction to unacceptable social impacts which occurred before the permit system was implemented.

Probably all five explanations are correct. Some decline in use probably would have occurred anyway. The Enchantments is primarily a camping setting, and overnight use has been gradually supplanted by day use in wilderness areas nationwide as the so-called "Baby Boomers" grow older (President's Commission on Americans Outdoors, 1987). It is also true that the permit system gives wilderness managers a previously unavailable source of accurate data. Thus it is possible that pre-1987 use levels were never as high as wilderness managers had estimated.

Use levels were quite high, however, and they were certainly high enough to cause social impacts which some visitors found unacceptable. Even under 1988 conditions, many visitors considered the area to be moderately crowded, including some who said they would not apply for a 1989 permit because the

area was "too crowded." The number of dissatisfied visitors was surely much larger before the permit system was instituted, and each of those dissatisfied visitors must have complained to several friends. Since reputations rarely change as fast as the conditions which caused them, it is likely that many people still believe the Enchantments suffers from too much use, even if conditions have been vastly improved.

However, there are also indications that the permit system has led to further reductions in use. Anecdotal evidence given by managers of nearby wilderness areas suggests that use in the Alpine Lakes Wilderness outside the Enchantments has increased, probably due to displacement. (Further discussion of the impacts on other areas can be found in the "Changes in Other Wilderness Settings" subsection of this chapter.) Of the non-visitors who do not plan to apply for an Enchantments permit in 1989, 25 percent said they were deterred by the permit system. Nearly half of the visitors who were surveyed said the permit system is likely to reduce their likelihood of visiting the Enchantments in the future. Given the abundance of alternative wilderness choices available in the Pacific Northwest, it is likely that many people simply crossed the Enchantments off their list of potential destinations because there were enough other places to visit where no permit is needed.

Nonetheless, most 1988 Enchantments visitors plan to keep visiting in the future. Over the next few years, those repeat visitors will learn more about how the permit system operates, and their use patterns may change accordingly. To a great extent, wilderness managers will be able to control how those use patterns change.

The use of information to evenly distribute wilderness visitors is an inexpensive and effective tool for wilderness managers (Hendee et al., 1978),

and it is already used by the Leavenworth Ranger District. Largely in response to suggestions made by ranger station staff, many visitors now stop at Colchuck Lake or the Snow Lakes and hike into the core area during the day. One visitor, whose request for a permit to camp in the Enchantments Core was denied, wrote on his survey booklet that he camped at Snow Lakes instead and that the revised plan "worked out better" than the original. Similarly, visitors can be encouraged to schedule trips for times when use levels are lower. Since so many Enchantments visitors come back year after year, it should be easy and relatively inexpensive for the Forest Service to disseminate information designed to disperse use more evenly over time and space.

One final question must be asked about the permit system's effect on use of the Enchantments: Does the system give an unfair advantage or disadvantage to any segment of the potential user population? Research has shown that recreationists tend to support allocation systems which they believe are fair, even when it means their own chances of getting a permit are reduced (Shelby et al., 1989a). Responses to the Enchantments survey suggests that the permit system is indeed fair. Statistical tests found no significant differences between those respondents who had been unable to visit the Enchantments, and those who had been able to visit.

Effect of the Permit System on the Enchantments Experience

There is no doubt that the permit system has reduced the level of unacceptable social impacts within the Enchantments area. However, some users might argue that impacts haven't been reduced quite enough. When Enchantments visitors were asked whether the area had ever offered the kind of experience

they thought it should offer, 89 percent said yes. However, only 71 percent of those who answered yes felt that their preferred experience had been offered during 1988.

While the other 29 percent might have been dissatisfied with many different facets of the Enchantments experience, there is other evidence that social impacts are still considered too great by some. One is the level of perceived crowding. More than half of the respondents felt at least "slightly crowded," and fully 25 percent felt at least "moderately crowded." The perceived crowding scale has been administered to outdoor recreationists in some 60 settings (Shelby et al., 1989b). When compared to responses for other wildernesses or wilderness-like areas, the Enchantments responses showed the greatest amount of perceived crowding of any backpacking area studied, but lower levels than in other climbing areas where the scale has been administered.

A second indication that social impacts exceed standards lies in users' descriptions of the Enchantments experience. Respondents were given a list of terms describing varying degrees of social impacts, and asked to choose the one which best describes the experience which should be offered in the Enchantments, as well as the experience that currently is offered. Most (72 percent) chose the lowest-impact descriptions, "wilderness" and "semi-wilderness" for the ideal experience. Yet only about half used those terms to describe current conditions.

It must be stressed that conditions are much better than they were a few years earlier, when as many as 400 people might have been found in the Enchantments Core on an August weekend (USDA Forest Service, 1986). Furthermore, use levels exceeded standards even less often in 1988 than during

the first year of the permit system. Still, some 1988 visitors (though not most of them) believe that further improvement is needed.

If managers want to offer an experience that meets the needs of users who are more sensitive to social impacts, the key may be to reconsider which kinds of impacts are used to evaluate whether standards are being exceeded. Currently the user quotas are based on the number of people and/or parties who spend the night in each of the four permit zones, but there is no restriction on the number of people who visit during the day. As a result, there were often twice as many people in the Enchantments Core during the day as at night. Even though overnight use levels were kept at or near the 60 PAOT standard established for the core area by the Alpine Lakes management plan, that level was frequently exceeded during the day.

Average use figures are not available for Stuart, Colchuck, or Snow Lakes, but since most day-use permits are issued for those destinations, it is safe to assume that daytime use exceeds overnight use by at least as great a margin as in the Enchantments Core. It is difficult to say whether social impacts exceed the standards for those areas, because the standards are not measured in numbers of people, but in numbers of encounters.

The plan does not explain whether the term "encounters" refers only to those occurring in camp, or to trail encounters as well. If standards are to be based solely on campsite encounters, the current system of unregulated day use makes sense. However, if trail encounters are also to be considered, it may be necessary to evaluate the effects of day use as well as overnight use. Backcountry visitors are more sensitive to encounters in camp than on the trail (Shelby and Heberlein, 1986). However, it is possible for camp encounters to be within visitors' norms while trail encounters are not.

Since the Enchantments survey did not address the question of encounter norms directly, there is no way to establish whether high day-use levels are a source of perceived crowding. However, a short and inexpensive annual survey administered by the Forest Service may be able to address that question, as well as the related issue of whether the population-based quotas are meeting the encounter-based standards. A two-page questionnaire mailed to a random sample of 100-150 permit holders would provide a means of monitoring social impacts in the Enchantments while cutting down on the need to have wilderness rangers spend time actually counting the number of encounters between visitors. (A sample questionnaire is provided in Appendix B.)

An alternative might be to change the standards themselves so that they are easier to use. This is probably a good idea at any rate for Stuart and Colchuck Lakes, where the current standard of "no more than seven encounters per day for 50 percent of the season" is unclear, and seems to imply that encounters may be unlimited during the other half of the season. The Snow Lakes standard, "no more than seven encounters per day," would be less ambiguous. The Enchantments Core standard of 60 PAOT may be easier for wilderness managers to work with, especially when use quotas are also set in terms of PAOT. However, from a wilderness user's standpoint, the important concern isn't how many people are actually sharing the wilderness, but how many of those people are seen and/or heard during a typical trip.

A related consideration is whether permit quotas should be set in terms of PAOT, as in the Enchantments Core, or in terms of parties, as at the outlying lakes. The use of party-based quotas may be easier, since people travel in parties anyway, and there is no need to try to find a combination of party sizes which meets a PAOT standard. However, if party sizes continue to

increase in response to added competition for permits, the party method may be less able to hold use levels within the prescribed encounter standard.

Substitution, Displacement, and Impacts on Other Settings

Whenever a quota system is established as a means of reducing use levels, some visitors will be displaced elsewhere -- either to a different wilderness setting, or to a different experience altogether. This displacement may be involuntary (when permits are denied) or voluntary (when people choose to simply avoid the "hassle" and visit a different setting).

So far, involuntary displacement has been kept to a minimum: Only 41 people could be identified as rejected applicants (counting those who never formally applied for a permit), and nearly a quarter of that group eventually were able to obtain Enchantments permits. However, the drastic reduction in use levels after establishment of the permit system in 1987 suggests that considerable voluntary displacement has occurred. Based on survey responses to questions about both hypothetical and actual displacement situations, it appears that most people would seek an alternative setting for a wilderness experience rather than choose an entirely different experience. However, responses to hypothetical questions may not always match actual behavior, and the sample of users who were actually displaced was too small to give conclusive evidence. Valuable insights could be provided by further research on substitution behavior, performed in a wilderness where substantial numbers of permit applications are already denied (e.g., in California).

The limited data on actual substitution behavior showed that areas chosen as substitutes were usually in the same general area as the originally

selected setting. Most displaced users reported traveling no farther to get to the substitute than they would to get to the Enchantments. There is no reason to suspect that voluntarily displaced users would choose different substitute settings than those who are involuntarily displaced. Since most Enchantments visitors live in the Puget Sound area, it is likely that their substitute choices would be largely limited to the Cascades, Mount Rainier National Park, or Olympic National Park. Alternative settings within the Alpine Lakes Wilderness may be considered especially good substitutes. Other areas which might receive additional use include those identified by survey respondents as providing an experience similar to the Enchantments. (A complete list of these "similar" settings is provided in Appendix C.)

Anecdotal evidence suggests that much of the voluntarily displaced use is indeed occurring elsewhere on the Alpine Lakes Wilderness, as evidenced by reported increases in use at selected locations within the Cle Elum and Leavenworth ranger districts (Judith Fraser, Chris Ryan, pers. comm.). The areas identified as getting increased use are listed in Appendix D. No increases were reported by wilderness managers on the Naches, Lake Wenatchee, or Chelan ranger districts of the Wenatchee National Forest (Mike Hiler, Roger Ross, Ken Dull, pers. comm.) nor on the Darrington Ranger District of the Mount Baker-Snoqualmie National Forest (Jan Hollenbeck, pers. comm.). All four districts are no farther from the Puget Sound area than the Enchantments, but only the Lake Wenatchee district contains any portion of the Alpine Lakes Wilderness.

If the Alpine Lakes Wilderness is particularly susceptible to increased use, a wilderness-wide permit system may be needed. Such a system has already been proposed, and the Enchantments survey included questions designed to

gauge user support for an extended permit system. Separate questions were asked about requiring permits during the peak season (summer and fall) and during the off-season (winter and spring).

There was very little support for such a system during the off-season, however a slight majority favored a wilderness-wide permit system during the summer and fall. Among those who have visited the Enchantments, a very slim majority (52 percent) said they would support an expanded permit system. Support was somewhat greater (62 percent) from people who had not visited the Enchantments. Overall, while there was majority support for wilderness-wide quotas, Forest Service managers can expect opposition from a large and perhaps vocal minority. It should be noted, however, that while the survey reached a sample of wilderness users, they may not have visited other parts of the Alpine Lakes Wilderness. Previous research has shown that people are more likely to support a use-rationing system if they have visited the area previously (Frost and McCool, 1988) and if they are aware of the need for reducing impacts within the particular setting (Lucas, 1983).

Whether or not the permit system is expanded, these findings suggest that wilderness managers in other areas of the Washington Cascades may see increased use as a result of the Enchantments permit system. Increases may or may not be significant, but managers of affected wilderness areas may want to pay especially close attention to social and ecological impacts to ensure that they meet regional wilderness standards. With on-going monitoring, managers would be in a position to anticipate and mitigate trends toward unacceptable changes in the resource, rather than having to respond to a newly discovered crisis.

LITERATURE CITED

- Anderson, Dorothy H., and Perry J. Brown. 1984. The Displacement Process in Recreation. Journal of Leisure Research 16(1): 61-73.
- Baumgartner, R.M., and Thomas A. Heberlein. 1981. Process, Goal, and Social Interaction Differences in Recreation: What Makes an Activity Substitutable. Leisure Sciences 4(4): 443-458.
- Becker, Robert H. 1981. Displacement of Recreational Users between the Lower St. Croix and Upper Mississippi Rivers. Journal of Environmental Management 13: 259-267.
- Brunson, Mark. 1989a. A Model of Campsite Choice in Dispersed Recreation Settings. Unpublished M.S. thesis, Oregon State University.
- Brunson, Mark. 1989b. Recreation Activity as a Factor in Campsite Choice. Notes on People, Parks and Forests 2 (July). Corvallis, OR: National Park Service, Cooperative Park Studies Unit, and Department of Forest Resources, Oregon State University.
- Bultena, Gordon L., Don Albrecht and Peter Womble. 1981. Freedom Versus Control: A Study of Backpackers' Preferences for Wilderness Management. Leisure Sciences 4(3): 297-310.
- Dekker, Emily A. 1976. Private Use of the Colorado River in the Grand Canyon and Canyonlands National Parks. Unpublished interim report.
- Dillman, Don A. 1978. Mail and Telephone Surveys: The Total Design Method. New York: John Wiley and Sons.
- Field, Donald R., and Joseph T. O'Leary. 1973. Social Groups as a Basis for Assessing Participation in Selected Water Activities. Journal of Leisure Research 5(Spring): 16-25.
- Frost, J.E., and Stephen F. McCool. 1988. Can Visitor Regulations Enhance Recreation Experience? Environmental Management 12(1): 5-9.
- Graefe, Alan R., Fred R. Kuss and Laura Loomis. 1985. Visitor Impact Management in Wildland Settings. Paper presented at the National Wilderness Research Conference, Fort Collins, Colo., July 23-26.
- Hammitt, William E., and David N. Cole. 1987. Wildland Recreation: Ecology and Management. New York: John Wiley and Sons, 341 pages.
- Hawes, D.K. 1978. Satisfaction Derived from Leisure Time Pursuits: An Exploratory Nationwide Survey. Journal of Leisure Research 10(4): 247-264.
- Hendee, John C., and Rabel J. Burdge. 1974. The Substitutability Concept: Implications for Recreation Research and Management. Journal of Leisure Research 6(2): 157-162.

- Hendee, John C., W.R. Catton Jr., L. D. Marlow and C. F. Brockman. 1968. Wilderness Users in the Pacific Northwest: Their Characteristics, Values and Management Preferences. Forest Service Research Paper PNW-61. Portland: Pacific Northwest Forest and Range Exper. Sta.
- Hendee, John C., George H. Stankey and Robert C. Lucas. 1978. Wilderness Management. Washington, D.C.: USDA Forest Service Miscellaneous Publication 1365, 381 pages.
- Jacob, Gerald R., and Richard Schreyer. 1980. Conflict in Outdoor Recreation: A Theoretical Perspective. Journal of Leisure Research 12(4): 368-380.
- Jubenville, Alan. 1971. A Test of Differences Between Wilderness Recreation Party Leaders and Party Members. Journal of Leisure Research 3(2): 116-119.
- Lucas, Robert C. 1983. The Role of Regulations in Recreation Management. Western Wildlands 9(2): 6-10.
- Lucas, Robert C. 1985. Visitor Characteristics, Attitudes and Use Patterns in the Bob Marshall Wilderness Complex, 1970-82. USDA Forest Service Res. Paper INT-345. Ogden, Utah: Intermountain Forest and Range Experiment Station.
- Manfredo, Michael J. 1989. An Investigation of the Basis For External Information Search in Recreation and Tourism. Leisure Sciences 11(1): 29-45.
- Manfredo, Michael J., and Dorothy Anderson. 1987. The Influence of Activity Importance and Similarity on Perception of Recreation Substitutes. Leisure Sciences 9(2): 77-86.
- McCool, Stephen F., and Jack Utter. 1982. Recreation Use Lotteries: Outcomes and Preferences. Journal of Forestry 80(1): 10-11.
- Nielsen, Joyce M., and Bo Shelby. 1977. River-running in the Grand Canyon: How Much and What Kind of Use. Proceedings: River Recreation Management and Research Symposium. USDA Forest Service General Technical Report NC-28. St. Paul, Minn.: North Central Forest Experiment Station, pp. 168-177.
- President's Commission on Americans Outdoors. 1987. Americans Outdoors: The Legacy, The Challenge. Washington, D.C.: Island Press.
- Roggenbuck, Joseph W., and Robert C. Lucas. 1987. Wilderness Use and User Characteristics: A State-Of-Knowledge Review. Proceedings -- National Wilderness Research Conference: Issues, State-Of-Knowledge, Future Directions. USDA Forest Service Gen. Tech. Report INT-220. Ogden, Utah: Intermountain Forest and Range Experiment Station, pp. 204-245.

- Schreyer, Richard. 1979. Succession and Displacement in River Recreation, Part I: Problem Definition and Analysis. Paper prepared for the River Recreation Project, USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minn.
- Shelby, Bo, and Thomas A. Heberlein. 1986. Carrying Capacity in Recreation Settings. Corvallis, Ore.: Oregon State University Press, 164 pages.
- Shelby, Bo, Neil Bregenzer and Rebecca Johnson. 1988. Displacement and Product Shift as Consequences of Increased Use. Journal of Leisure Research 20(4): 274-288.
- Shelby, Bo, Doug Whittaker and Mark Danley. 1989a. Idealism Versus Pragmatism in User Evaluations of Allocation Systems. Leisure Sci. 11(1): 61-70.
- Shelby, Bo, Jerry J. Vaske and Thomas A. Heberlein. 1989b. Interpreting Aggregate Crowding Data: Results from Fifteen Years of Crowding Research. Unpublished manuscript.
- Stankey, George H. 1979. Use Rationing in Two Southern California Wildernesses. Journal of Forestry 77(5):347-349.
- Stankey, George H. 1980. A Comparison of Carrying Capacity Perceptions Among Visitors to Two Wildernesses. USDA Forest Service Research Paper INT-242. Ogden, Utah: Intermountain Forest and Range Experiment Station.
- Stankey, George H., David N. Cole, Robert C. Lucas, Margaret E. Peterson, Sidney S. Frissell and R.F. Washburne. 1985. The Limits of Acceptable Change (LAC) System for Wilderness Planning. USDA Forest Service General Technical Report INT-176. Ogden, Utah: Intermountain Forest and Range Experiment Station.
- Tinsley, H.E.A., and T.L. Johnson. 1984. A Preliminary Taxonomy of Leisure Activities. Journal of Leisure Research 16(3): 234-244.
- USDA Forest Service. 1986. An Enchanting Proposal: Wilderness Use Allocation. Unpublished briefing paper presented by the Wenatchee National Forest, Nov. 12, 1986.
- USDA Forest Service. 1987. Permit System Evaluation. Unpublished paper, Leavenworth Ranger District.
- Vaske, Jerry J., Maureen P. Donnelly and D.L. Tweed. 1983. Recreationist-Defined Versus Researcher-Defined Similarity Judgments in Substitutability Research. Journal of Leisure Research 15(3): 251-262.

PERSONAL COMMUNICATIONS

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APPENDIX A

Enchantments Visitor Survey
1988

1. Have you visited the Enchantments?

89.2 yes —> skip to question 1, page 3

10.8 no

n = 388

This section is for those who have never visited the Enchantments.

2. If you had been granted a permit, would you have visited the Enchantments in 1988?

60.0 yes

40.0 no

n = 35

3. Did you consider making your visit at some time other than the permit-required season (June 15 to October 15)?

24.4 yes

75.6 no

n = 41

4. Do you feel that having to apply for a permit reduces the likelihood of your actually visiting the Enchantments?

53.7 no

46.3 yes, please explain: 18.5% planning problems; 9.3% too hard to get a permit; 6.9% problems with USFS administrators; 4.6% don't like to have to apply; 4.6% doesn't allow for spontaneity

n = 41

5. Currently, use is limited only in the Enchantment Lakes portion of the Alpine Lakes Wilderness. Do you think the Forest Service should limit use in the entire Alpine Lakes Wilderness Area during the June 15 - October 15 (summer and fall) period?

24.3 I strongly support the idea.

37.8 I support the idea.

21.6 I oppose the idea.

n = 37

16.2 I strongly oppose the idea.

6. Currently, use is limited only in the Enchantment Lakes portion of the Alpine Lakes Wilderness. Do you think the Forest Service should limit use in the entire Alpine Lakes Wilderness Area during the October 16 - June 14 (winter and spring) period?

13.9 I strongly support the idea.

27.8 I support the idea.

33.3 I oppose the idea.

n = 36

25.0 I strongly oppose the idea.

7. When your permit application was rejected, what did you do on the dates you had planned to be in the Enchantments? Select the one best answer.
- 37.9 I went to a different wilderness area.
10.3 I enjoyed an outdoor recreational activity other than a wilderness trip.
3.4 I participated in sports or athletic activities.
 _____ I pursued my hobbies or crafts.
 _____ I participated in social activities such as a movie or party.
10.3 I went sightseeing.
6.9 I pursued activities at home such as watching TV or home repairs.
 _____ I went to work instead of recreating.
31.0 other, please specify n = 29
8. What specific activity did you do instead of going to the Enchantments? Be as specific as possible, such as "painting the house" or "backpacking in Olympic National Park."
48.4% backpacked/hiked in other areas; 9.7% went sightseeing on the coast; 6.5% went to work n = 31
9. Do you plan to apply for a permit to visit the Enchantments during 1989?
62.5 yes n = 40
37.5 no → skip to question 11
10. How far in advance of the planned trip will you apply for a permit?
 Number of ... 4.0% - 1 week 16.0% - 1 month
 _____ days 16.0% - 2 weeks 24.0% - 1.5/2 months
 Please skip to question 12. 4.0% - 3 weeks 12.0% - 3 months
 mean = 2.4 mo. n = 25 24.0% - 4 to 6 mo.
11. Why don't you plan to apply for a permit in 1989?
6.3 I plan to visit the Enchantments before/after the permit-required season.
37.5 I plan to visit a different area. n = 16
12.5 Permits are too hard to get.
6.3 I don't believe in limiting access to the wilderness.
6.3 Permits are too expensive.
46.7 Other factors prevent a visit in 1989.
12. If you were to apply for a permit to visit the Enchantments in 1989 but you weren't granted a permit, would you: (choose only one answer)
21.1 postpone the trip and reapply for another date?
13.2 attempt to obtain a permit on a first-come, first-served basis?
2.6 decide to go on the trip without getting a permit?
55.3 choose to visit a different wilderness area?
2.6 choose to pursue an outdoor recreation activity other than a wilderness trip?
2.6 choose to pursue a recreational activity at home or in a town?
2.6 go to work as usual?
 n = 38

Please go to question 1, page 20.

This section is for those who have visited the Enchantments.

1. What is your primary recreational activity in the Enchantments?
(Check only the one most important activity.)

28.8 wilderness camping
16.9 mountain/alpine climbing
7.7 rock climbing
39.3 backcountry hiking
0.3 nature study
3.4 fishing
 bow hunting
0.6 hunting (with rifle)
3.1 photography

n = 326

2. How long have you been participating in this activity?

38% ≤ 10 years 21.2% > 20 years
 41% 11 to 20 years mean = 15.5 yrs. n = 342

3. How many years have you been visiting the Enchantments?

<u>35.6%</u> 1 year	<u>5.6%</u> 4 years	<u>17.6%</u> 11 to 20 years
<u>9.4%</u> 2 years	<u>5.0%</u> 5 years	<u>2.7%</u> 20+ years
<u>10.0%</u> 3 years	<u>14.2%</u> 6 to 10 years	
mean = 5.9 yrs.		n = 342

4. On your most recent trip, did the Enchantments seem (circle one number) ...

15.7%	27.8%	19.7%	11.9%	7.5%	14.2%	2.6%	0.6%	0%
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
not at all		slightly		moderately		extremely		
crowded		crowded		crowded		crowded		

n = 345

5. How many trips to wilderness areas do you normally make in a single year?

<u>12.1%</u> 1 trip	<u>12.1%</u> 4 trips	<u>18.6%</u> 11 to 50 trips
<u>13.0%</u> 2 trips	<u>9.7%</u> 5 trips	mean = 7.4 trips
<u>12.1%</u> 3 trips	<u>22.4%</u> 6 to 10 trips	n = 339

6. How many different wilderness areas do you normally visit in a single year?

4.6 only the Enchantments → Please skip to question 8.
35.8 the Enchantments and one or two others
43.7 the Enchantments and three to five others
15.9 the Enchantments and 5+ other areas (please specify number)
 n = 327

7. Do you normally visit these other areas during the same season(s) you visit the Enchantments?

82.8 yes
17.2 no

n = 319

8. Many kinds of experiences can be enjoyed in a wilderness area. If there is another area you believe offers an experience similar to the Enchantments experience, please name it below.

13.7% North Cascades; 10.1% other areas in Alpine Lakes Wilderness;
4.9% many other areas; 4.2% Sierras; 3.9% South & Central Cascades;
2.6% Central Rockies; 2.3% each: Northern Rockies, Olympics, Wallawas

51.1 For me, no other area offers an experience like the Enchantments.
n = 309

9. How many people, other than yourself, usually go with you on a typical trip to the Enchantments?

(If your answer is zero, go to question 11.)

40.9% 1 other; 27.8% 2 others; 13.7% 3 others; 5.6% 4 others;
2.6% 5 other people mean = 1.9 others n = 342

10. On a typical trip to the Enchantments, are your companions usually ... (Chose the one best answer.)

16.1 family members

51.4 friends

29.3 a combination of family and friends n = 311

2.6 members of a club you belong to

0.6 business associates

11. The Enchantments offer a different type of experience at different times of year. Please check the month(s) when you prefer to visit the Enchantments.

3.5 January

3.8 February

3.5 March

6.5 April

15.9 May

24.5 June

46.0 July

61.2 August

63.5 September

39.1 October

5.6 November

2.9 December

n = 339

12. People have different reasons for preferring one time of year over another. Please check the reasons that apply to the months you checked above.

68.9 weather conditions are better

28.1 the area isn't as crowded

7.7 permits aren't required

22.3 the bugs aren't out

19.3 I have more time for trips

27.3 climbing conditions are better

9.2 the people I go with can go only at this time

10.1 fishing/hunting season is open

5.9 its easier to find a good camping spot

44.5 larch is in fall colors

20.8 wild flowers are out

n = 337

13. During 1988, when did you visit the Enchantments? Please check the appropriate months.

<u>0.3</u> January	<u>24.6</u> July
<u>1.3</u> February	<u>38.2</u> August
<u>0.6</u> March	<u>32.8</u> September
<u>4.7</u> April	<u>17.4</u> October
<u>9.5</u> May	<u>1.9</u> November
<u>8.2</u> June	<u>0.9</u> December

n = 316

14. How far in advance do you generally decide to go on a trip to the Enchantments? Number of ...

55.2%, 0 days; 9.5%, 7 to 10 days; 4.9%, 28 to 60 days
13.6%, 1 to 6 days; 16.7%, 14 to 21 days

mean = 5.6 days n = 346

15. When do you generally take your trip(s) to the Enchantments?
 (Chose the one best answer.)

<u>26.9</u> weekdays	
<u>38.9</u> weekends	n = 324
<u>0.6</u> holidays	
<u>4.6</u> only when a holiday makes for a long weekend	
<u>15.1</u> during my vacation	
<u>13.9</u> no particular day	

16. How many days do you usually spend in the Enchantments when you visit? Please write the appropriate number of days for each season of the year.

		Spring	Summer	Fall	Winter
Number of days	≤ 1	16.4%	8.8%	9.8%	12.0%
	2 to 4	74.0%	66.6%	79.0%	68.0%
	5 to 6	9.7%	24.6%	11.4%	8.0%
	≥ 7	—	—	—	12.0%
	mean =	2.81	3.75	3.24	3.20
	n =	73	240	204	25

17. What kind of weather conditions would be severe enough to make you cancel a trip into the Enchantments?

<u>5.0</u> cool, chilly weather	
<u>7.7</u> afternoon thunderstorms	n = 336
<u>60.1</u> heavy rain	
<u>23.7</u> freezing temperatures	
<u>51.8</u> snow	
<u>17.6</u> weather conditions don't deter me from going into the Enchantments	

18. A variety of attributes that characterize a wilderness experience in the Enchantments. Please indicate the importance of the following characteristics by circling the appropriate number for each item.

		IMPORTANCE				
		None	Slight	Moderate	High	Greatest
Good weather	<u>Mean = 2.54</u>	0	1	2	3	4
Pristine environment	<u>3.32</u>	0	1	2	3	4
Exhilarating scenery	<u>3.59</u>	0	1	2	3	4
Secluded campsites	<u>2.40</u>	0	1	2	3	4
Clean water	<u>2.67</u>	0	1	2	3	4
Seeing wildlife	<u>2.15</u>	0	1	2	3	4
Getting together with family/friends	<u>2.04</u>	0	1	2	3	4
Being self-reliant	<u>2.26</u>	0	1	2	3	4
Enjoying good hiking	<u>3.00</u>	0	1	2	3	4
Chancing dangerous situations	<u>1.17</u>	0	1	2	3	4
Studying nature	<u>1.93</u>	0	1	2	3	4
Getting away from other people	<u>2.69</u>	0	1	2	3	4
Enjoying good camping	<u>2.57</u>	0	1	2	3	4
Relaxing, getting away from it all	<u>2.95</u>	0	1	2	3	4
Enjoying good fishing/hunting	<u>0.90</u>	0	1	2	3	4
Meeting other people	<u>0.66</u>	0	1	2	3	4
Doing classic climbs	<u>1.34</u>	0	1	2	3	4
Being physically active, getting exercise	<u>3.10</u>	0	1	2	3	4

19. How important are the following factors when you are looking for a campsite in the Enchantments? Please circle the best choice.

		Not Important	Somewhat Important	Important	Very Important
Shade	<u>Mean = 1.59</u>	1	2	3	4
Flat area for tents	<u>3.05</u>	1	2	3	4
Close to climbing routes	<u>1.85</u>	1	2	3	4
Sheltered from wind and rain	<u>2.65</u>	1	2	3	4
Improvements (fire ring, seating)	<u>1.53</u>	1	2	3	4
Close to good fishing	<u>1.53</u>	1	2	3	4
Screening from other campsites	<u>2.89</u>	1	2	3	4
Out of sight and sound of others	<u>2.94</u>	1	2	3	4
Doesn't have much bare ground	<u>1.77</u>	1	2	3	4
Good view of mountains	<u>2.93</u>	1	2	3	4
No evidence of prior use (fire ring, litter)	<u>2.37</u>	1	2	3	4
Close to drinking water	<u>2.88</u>	1	2	3	4
Dry and well-drained	<u>3.01</u>	1	2	3	4
Good view of lake(s)	<u>2.63</u>	1	2	3	4
Close to trail	<u>1.52</u>	1	2	3	4
Good view of stream	<u>1.94</u>	1	2	3	4
Gets morning sun	<u>2.17</u>	1	2	3	4
Gets evening sun	<u>2.06</u>	1	2	3	4
Close to other campers	<u>1.15</u>	1	2	3	4
Close to toilets	<u>1.60</u>	1	2	3	4

20. People seek out different kinds of recreational experiences in different settings. Which of the following categories best describes the current experience offered by the Enchantments?

- 1.2 social recreation, where seeing many people is part of the experience
- 18.0 scenic recreation, where you expect to see other people often
- 32.2 undeveloped recreation, where you expect to see other people some of the time
- 42.0 semi-wilderness, where complete solitude is not expected
- 6.5 wilderness, where complete solitude is part of the experience

n = 338

21. Which category best describes the experience you think should be offered in the Enchantments?

- 0 social recreation
- 7.1 scenic recreation
- 21.1 undeveloped recreation
- 50.6 semi-wilderness
- 21.1 wilderness

n = 336

22. Have the Enchantments ever offered the type of recreational experience you thought they should?

- 88.7 yes → when, what year(s)? 71.2%, 1988; 5.6%, 1987;
- 11.3 no <3% for all other years

n = 326

(1960 -1986)

23. In the years you have been recreating there, do you think the type of experience offered by the Enchantments has changed?

- 56.9 yes
- 43.1 no → go to question 25

n = 274

24. Has the experience offered by the Enchantments changed enough to make you feel that you should go elsewhere to enjoy the type of experience you desire?

- 65.8 no
- 34.2 yes, please explain 16.8% too many people; 10.9% object to permit system; 2.2% environmental degradation; 1.1% too noisy; 1.1% poor hunting now; 0.5% too little chance of getting a permit on first come, first served basis

n = 184

25. Do you plan to apply for a permit to visit the Enchantments during 1989?

- 69.4 yes → go to question 27
- 30.6 no

n = 324

26. Why don't you plan to apply for a permit in 1989? (Chose the one best answer.)

- 50.5 Desire to see new area n = 109
- 8.3 The Enchantments are too crowded
- 7.3 I plan to visit when permits aren't required
- 3.7 Permits are too expensive
- 5.5 I don't believe in limiting access to the wilderness
- Permits are too hard to get
- 24.8 other factors prevent a visit

Please go to question 29.

27. Will your 1989 application be for the same time of year as was your 1988 application?

- 76.8 yes → go to question 29 n = 220
- 23.2 no

28. Why will you apply for a permit for a different time of year?

- 47.4 To see the Enchantments in a different season
- 19.6 My companions and I can go only at this time
- 12.5 Better chance of getting a permit
- 21.4 Better weather
- 7.1 To avoid bugs and mosquitoes n = 57
- 21.4 To avoid crowds of people
- 10.7 other, please specify 3.6% scheduling problems; 3.6% make many trips to the area

29. Currently, use is limited only in the Enchantment Lakes portion of the Alpine Lakes Wilderness. Do you think the Forest Service should limit use in the entire Alpine Lakes Wilderness Area during the June 15 - October 15 (summer and fall) period?

- 18.1 I strongly support the idea. n = 326
- 33.4 I support the idea.
- 31.0 I oppose the idea.
- 17.5 I strongly oppose the idea.

30. Currently, use is limited only in the Enchantment Lakes portion of the Alpine Lakes Wilderness. Do you think the Forest Service should limit use in the entire Alpine Lakes Wilderness Area during the October 16 - June 14 (winter and spring) period?

- 4.9 I strongly support the idea. n = 326
- 18.4 I support the idea.
- 43.9 I oppose the idea.
- 32.8 I strongly oppose the idea.

31. Do you feel that having to apply for a permit to visit the Enchantments reduces the likelihood of your actually visiting the area?

56.1 no

n = 129

43.9 yes, please explain 13% planning too difficult; 8.5% precludes spur of the moment trips; 6.8% can't get permits for the desired dates; 4.4% chance of being turned down is too great

32. Do you normally take time off from work (other than vacation) in order to take a trip to the Enchantments?

36.2 yes

n = 337

63.8 no → Please skip to question 1 below.

33. How much income do you give up when you take time off from work to go to the Enchantments?

43.4% \$0

7.0% \$301 to 750

24.7% \$1 to 150

7.1% \$751 to 1000

14.2% \$151 to 300

3.6% \$1001 to 4000

mean = \$257.87

n = 113

These questions are about your 1988 Enchantments trip(s).

1. How many miles did you drive from your home in getting to the Enchantments? (one-way mileage, not round trip)

6.8% <15 miles

35.0% 111 - 150 miles

11.5% 16 - 50 miles

11.1% 151 - 200 miles

27.3% 51 - 110 miles

8.4% 201 - 3000 miles

mean = 146 mi.

n = 323

2. Which one of the following best describes your feelings about traveling to and from the Enchantments?

n = 323

7.4 I don't like having to drive so far.

28.8 It's not a bad drive, but I wish it was a bit shorter.

22.6 I could take it or leave it.

34.7 On the whole, I like driving to and from the area.

5.9 The drive makes the whole trip more enjoyable.

0.6 The trip would be even more enjoyable if the drive were longer.

3. Did you visit the Enchantments during the permit-required period (June 15 - October 15)?

89.4 yes → go to question 5

10.6 no

n = 329

4. Did you choose to visit the Enchantments outside the permit season in order to avoid the permit system?

20.0 yes

80.0 no

n = 30

Please skip to question 15, page 12.

5. Did you choose to visit during the permit season because you felt you would be more likely to enjoy the type of recreational experience you desire?

43.1 no

51.9 yes, please explain 29.7% better/good weather; 7.8% to see fall colors/larch; 5.2% less crowded; 5.2% better/good climbing conditions; 1.9% good hiking conditions; 1.3% good fishing conditions; good swimming 0.3%; more daylight 0.3%

n = 295

6. The permit application asks for three alternative trip dates. Did you get your ...

74.9 first choice

12.0 second choice

n = 275

3.6 third choice

9.5 none of the above, my permit application was rejected.

7. How far in advance of your first choice trip date did you apply for a permit? Number of ...

38.2% 0 days

3.2% 1 week

6.7% 1 month

5.2% 4+mo.

12.4% 1 day

8.1% 2 weeks

6.4% 2 months

mean = 40.2 days

5.0% 2 - 6 days

4.6% 3 weeks

6.6% 3 months

n = 346

8. During your 1988 trip, did you plan to camp overnight in the Enchantments?

79.7 yes

n = 295

20.3 no → go to question 12

9. Did you obtain a permit to camp in the Enchantments for this trip?

85.4 yes → go to question 12

14.6 no

n = 239

10. Did you stay overnight in the Enchantments even though you did not have a permit to camp in the Enchantments?

25.7 yes

n = 35

74.3 no → go to question 12

11. Which one of the following best describes your reason for camping in the Enchantments without a permit?

 I was forced to camp because of poor weather.

10.0 I underestimated the length or difficulty of the hike.

 I was on a multi-day climb.

50.0 It was worth risking a fine.

40.0 I did not understand that a permit was required.

n = 10

12. Was your initial application for a permit accepted?

86.9 yes

13.1 no → go to question 17, page 13 n = 291

13. Did you actually make use of the permit? That is, did you pick up your permit at either the Ranger Station in Leavenworth or the trailhead?

92.1 yes → go to question 15

7.9 no n = 253

14. Why didn't you pick up your permit?

12.5 The weather wasn't good enough for the planned trip

4.2 I forgot about the trip until it was too late to go

25.0 The folks I was planning to go with decided not to go

8.3 I don't believe in limiting access to the wilderness

50.0 other, please explain:

12.5% didn't feel like picking it up; 12.5% had a change of plans;

8.3% the office was closed when I stopped in; 8.3% illness/not up for the trip; 8.3% did not know about system; 4.2% had already paid for the permit

n = 24

15. How long did your trip last? The trip lasted ...

20.4% <1 day 29.5% 3 days 8.3% 5 days 0.6% 8-9 days

13.2% 2 days 22.9% 4 days 4.9% 6-7 days

mean = 3.1 days n = 288

16. If your application had been rejected, would you have ...

15.0 Postponed the trip and reapplied for another date?

24.7 Attempted to obtain a permit on a first-come, first-served basis?

51.3 Decided to visit a different or substitute area?

1.9 Decided to pursue an activity other than a wilderness trip, even if that activity was to stay home?

7.1 Decided to go on the trip anyway?

n = 267

If you got your permit, please go to question 1, page 20.

In completing this questionnaire, you may be asked to return to this question several times — once for each time you had a permit application rejected during the 1988 season. Please mark the response you select to describe what you did as a result of the first permit rejection with a 1. Use a 2 for the second rejection, and so on.

17. When your application was rejected, did you:

A) Postpone the trip and reapply for another date?

26.8 yes → go to question 18, page 13 n = 11

B) Attempt to obtain a permit on a first-come, first-served basis?

34.1 yes → go to question 27, page 15 n = 14

C) Choose to visit a different or substitute area?

36.6 yes → go to question 33, page 16 n = 15

D) Choose to pursue an activity other than a wilderness trip, even if that activity was to stay home?

2.4 yes → go to question 44, page 18 n = 1

E) Decide to go on the trip without getting a permit?

0 yes → go to question 1, page 20

This section is for those who postponed their trip and reapplied for a permit to camp in the Enchantments.

18. Were you granted a permit when you reapplied, even if it took several tries?

72.7 yes n = 11

27.3 no → mark here ____ and go to question 17 for the second time

19. How many times did you reapply before being granted a permit?

50.0% 1 time

50.0% 2 times

mean = 1.5 times n = 8

20. How long did your trip last? The trip lasted ...

37.5% 3 days

12.5% 6 days

mean = 4.5 days

37.5% 4 days

12.5% 9 days

n = 8

21. Did reapplying for a permit cause you to spend a shorter time than you had planned in the Enchantments?

37.5 yes

62.5 no → go to question 23

n = 8

22. How much shorter than you had planned was your time in the Enchantments?

33.3% 1 day

66.7% 2 days

mean = 1.7 days

n = 3

23. The permit application asks for three alternative trip dates. When your application was accepted, did you get your ...

14.3 first choice

57.1 second choice

28.6 third choice

n = 7

24. Did you make the visit to the Enchantments with the same group of people you had planned to go with when you made your first permit application?

62.5 yes → go to question 26

37.5 no

n = 8

25. Going on a trip with different companions can result in a different type of experience. As a result of the different companions, do you feel the postponed trip was ...

 more pleasant than

50.0 no different than

50.0 less pleasant than

n = 4

... the originally planned trip?

26. As a result of postponing the trip, do you feel you enjoyed your visit ...

14.3 more than

57.1 the same as

28.6 less than

n = 7

... you would have enjoyed visiting on your first choice date listed on your first application?

Please go to question 1, page 20.

This section is for those who attempted to obtain a permit to camp in the Enchantments on a first-come, first-served basis.

27. Did you obtain a permit on a first-come, first-served basis?

78.6 yes n = 14

21.4 no → mark here ____ and go to question 17 for the second time

28. How many days did you have to wait before getting a permit?

100% 2 days n = 2

29. Did waiting for a permit cause you to spend a shorter time than you had planned in the Enchantments?

 yes

100 no → go to question 31 n = 11

30. How much shorter than you had planned was your time in the Enchantments?

No Responses days

31. How long did your trip last? The trip lasted ...

16.7% 2 days 8.3% 5 days mean = 3.5 days

41.7% 3 days 8.3% 6 days n = 12

25.0% 4 days

32. As a result of getting a permit on a first-come, first served basis, do you feel you enjoyed your visit ...

9.1 more than

72.7 the same as

18.2 less than

n = 11

... you would have enjoyed visiting on your first choice date listed on your first application?

Please go to question 1, page 20.

This section is for those who chose to go to a different or substitute area.

33. What is the name of the substitute area? n = 14

35.7% different area in the Alpine Lakes; 14.3% Mt. Rainier

34. For you personally, was the substitute different from the Enchantments?

The setting was	<u> </u> better	
	<u>30.8</u> same	n = 13
	<u>69.2</u> worse	

The experience was	<u> 7.1 </u> better	
	<u>50.0</u> same	n = 14
	<u>42.9</u> worse	

The benefits were	<u>13.3</u> greater	
	<u>40.0</u> same	n = 15
	<u>46.7</u> lesser	

35. How long did your trip last? The trip lasted ...

<u>35.7%</u> 2 days	<u>14.3%</u> 5 days	mean = 3.6 days
<u>21.4%</u> 3 days	<u> 7.1%</u> 10 days	n = 14
<u>21.4%</u> 4 days		

36. How many miles did you drive from your home in getting to the substitute area? (one-way mileage, not round trip)

<u>28.4%</u> 110 miles or less	mean = 130.9 miles
<u>42.8%</u> 111 to 150 miles	n = 14
<u>28.4%</u> 151 to 200 miles	

37. How much time did you spend traveling to get to the substitute area, compared to the travel time for the Enchantments?

Getting to the substitute area took ...

<u>21.4</u> less travel time	
<u>50.0</u> the same amount of travel time	n = 14
<u>28.6</u> more travel time	

38. Which one of the following best describes your feelings about traveling to the substitute area?

<u>28.6</u> I don't like having to drive so far.
<u>14.3</u> It's a nice enough drive, but I wish it was a bit shorter.
<u>21.4</u> I really don't care one way or another.
<u>28.6</u> On the whole, I like driving to and from the area.
<u> </u> The drive makes the whole trip more enjoyable.
<u> 7.1 </u> The trip would be even more enjoyable if the drive were longer.
n = 14

39. Did you take time off from work (other than vacation) in order to go to the substitute area?

21.4 yes

78.6 no → go to question 41

n = 14

40. How much income did you give up when you took time off to make the substitute trip?

33.3% \$400.00

mean = \$1133

33.3% \$500.00

n = 3

33.3% \$2500.00

41. Did you go to the substitute area with the same group of people you had planned to go with to the Enchantments?

92.9 yes → go to question 43

7.1 no

n = 14

42. Going on a trip with different companions can result in a different type of experience. As a result of the different companions was the trip to the substitute area ...

 more pleasant than

 no different than

n = 1

100 less pleasant than

... a trip to the Enchantments?

43. What was your primary activity in the substitute area? (Chose the one best answer.)

30.8 wilderness camping

30.8 mountain/alpine climbing

23.1 backcountry hiking

7.7 rock climbing

 fishing

 bow hunting

 hunting (with rifle)

 nature study

7.7 photography

 other, please specify:

n = 13

Please go to question 1, page 20.

This section is for those who chose to pursue an activity other than a wilderness trip.

44. What was the primary activity you decided to pursue instead of going on a wilderness trip? Select the one best answer.

- ☐ I enjoyed an outdoor recreational activity other than a wilderness trip.
- ☐ I participated in sports or athletic activities.
- ☐ I pursued my hobbies or crafts.
- ☐ I participated in social activities such as a movie or party.
- ☐ I went sightseeing.
- ☐ I pursued activities at home such as watching TV or home repairs.
- ☒ I went to work instead of recreating.

n = 1

45. What specific activity did you pursue instead of going on a wilderness trip? Be as specific as possible, such as "painting the house" or "backpacking in Olympic National Park."

100% went to work as usual

n = 1

46. Do you consider this activity to be a good substitute for a wilderness trip in the Enchantments?

- ☒ definitely not
- ☐ generally not
- ☐ don't know
- ☐ generally yes
- ☐ definitely yes

n = 1

47. Does this activity give you ...

- ☐ more enjoyment than a
 - ☐ the same amount of enjoyment as
 - ☒ less enjoyment than a
- ... wilderness trip in the Enchantments?

n = 1

48. Did you pursue this alternative activity on the same dates you had planned to go to the Enchantments?

- ☒ yes
- ☐ no

n = 1

49. Did you pursue the activity with the same group of people you had planned to go with to the Enchantments?

- ☐ yes → go to question 51
- ☒ no

n = 1

50. Going on a trip with different companions can result in a different type of experience. As a result of the different companions was the alternative activity ...

☐ more pleasant than
☐ no different than (No Response)
☐ less pleasant than

... a trip to the Enchantments?

51. Did you take time off from work (other than vacation) in order to pursue the alternative activity?

☐ yes
100 no → go to question 53 n = 1

52. How much income did you give up when you took time off to pursue the alternative activity?

\$ (No Response)

53. Did you have to travel to pursue the activity?

☐ yes
100 no → go to question 1, page 20 n = 1

54. How many miles did you drive to participate in the activity? (one-way mileage, not round trip)

☐ miles (No Response)

55. How much time did you spend traveling to get to the alternative activity, compared to the travel time for the Enchantments?

Getting to the alternative activity took ...

☐ less travel time
☐ the same amount of travel time (NoResponse)
☐ more travel time

56. Which one of the following best describes your feelings about traveling to and from the alternative activity?

☐ I don't like having to drive so far.
☐ It's not a bad drive, but I wish it was a bit shorter.
☐ I could take it or leave it.
☐ On the whole, I like driving to and from the area.
☐ The drive makes the whole trip more enjoyable.
☐ The trip would be even more enjoyable if the drive were longer.

(No Response)

Please go to question 1, page 20.

Finally, we need to know a little bit more about you, so that we can compile an overall profile of visitors to the Enchantment Lakes. This information will be general, as in 'Sixty percent of visitors to the Enchantments are 22-27 year old men.' All information will be kept strictly confidential; your name will not be associated with any reported results.

Demographics of those who have visited the Enchantments.

1. How old are you? mean = 37.1 n = 346

2. Are you 22.6% female 77.4% male n = 345

3. How much education have you completed?

<u>1.2</u> some high school	<u>41.3</u> bachelor's degree
<u>4.6</u> high school diploma	<u>34.4</u> advanced degree
<u>18.5</u> some college	n = 346

4. What is your marital status?

<u>36.3</u> single	
<u>54.7</u> married	n = 342
<u>9.0</u> separated or divorced	
<u> </u> widowed	

5. How many children do you have? mean = 1.73 n = 346

6. Please mark the category that best describes your total household income for last year. n = 336
mean income = \$43,900

<u>0.6</u> \$0 - \$4,999	<u>2.1</u> \$50,000 - \$54,999
<u>0.9</u> \$5000 - \$9,999	<u>11.0</u> \$55,000 - \$59,999
<u>4.2</u> \$10,000 - \$14,999	<u>1.5</u> \$60,000 - \$64,999
<u>4.8</u> \$15,000 - \$19,999	<u>5.4</u> \$65,000 - \$69,999
<u>6.5</u> \$20,000 - \$24,999	<u>1.8</u> \$70,000 - \$74,999
<u>7.7</u> \$25,000 - \$29,999	<u>3.9</u> \$75,000 - \$79,999
<u>9.2</u> \$30,000 - \$34,999	<u>1.8</u> \$80,000 - \$84,999
<u>10.7</u> \$35,000 - \$39,999	<u>2.1</u> \$85,000 - \$89,999
<u>8.3</u> \$40,000 - \$44,999	<u>0.3</u> \$90,000 - \$94,999
<u>8.3</u> \$45,000 - \$49,999	<u>0.9</u> \$95,000 - \$99,999
	<u>8.0</u> \$100,000 or more

7. What size town do you live in? n = 342

<u>8.2</u> farm or rural area	
<u>7.6</u> small town (less than 5,000 people)	
<u>27.2</u> small city (5,000 to 50,000 people)	
<u>40.6</u> large city (more than 50,000 people)	
<u>16.1</u> suburb of a large city	

8. What is the zipcode from the address you lived at when you made your last 1988 trip to the Enchantments?
94.9% Washington; 2.7% California; 1.8% Oregon; 0.6% Canada

Thank you!

Finally, we need to know a little bit more about you, so that we can compile an overall profile of visitors to the Enchantment Lakes. This information will be general, as in 'Sixty percent of visitors to the Enchantments are 22-27 year old men.' All information will be kept strictly confidential; your name will not be associated with any reported results.

Demographics of those who have not visited the Enchantments.

1. How old are you? mean = 37.8 n = 41
2. Are you 31.7% female 68.3% male n = 41
3. How much education have you completed?

<u>4.9</u> some high school	<u>39.0</u> bachelor's degree
<u>4.9</u> high school diploma	<u>36.6</u> advanced degree
<u>14.6</u> some college	n = 41
4. What is your marital status?

<u>43.9</u> single	
<u>53.7</u> married	n = 41
<u>2.4</u> separated or divorced	
_____ widowed	
5. How many children do you have? mean = 1.58 n = 42
6. Please mark the category that best describes your total household income for last year. n = 38
mean = \$43,950

<u>5.3</u> \$0 - \$4,999	<u>13.2</u> \$50,000 - \$54,999
_____ \$5000 - \$9,999	<u>10.5</u> \$55,000 - \$59,999
<u>5.3</u> \$10,000 - \$14,999	_____ \$60,000 - \$64,999
_____ \$15,000 - \$19,999	_____ \$65,000 - \$69,999
<u>5.3</u> \$20,000 - \$24,999	<u>2.6</u> \$70,000 - \$74,999
<u>2.6</u> \$25,000 - \$29,999	<u>2.6</u> \$75,000 - \$79,999
<u>15.8</u> \$30,000 - \$34,999	<u>5.3</u> \$80,000 - \$84,999
<u>10.5</u> \$35,000 - \$39,999	_____ \$85,000 - \$89,999
<u>10.5</u> \$40,000 - \$44,999	_____ \$90,000 - \$94,999
<u>7.9</u> \$45,000 - \$49,999	_____ \$95,000 - \$99,999
	<u>2.6</u> \$100,000 or more
7. What size town do you live in?

<u>2.4</u> farm or rural area	n = 41
<u>4.9</u> small town (less than 5,000 people)	
<u>36.6</u> small city (5,000 to 50,000 people)	
<u>39.0</u> large city (more than 50,000 people)	
<u>17.1</u> suburb of a large city	
8. What is the zipcode from the address you lived at when you made your last 1988 trip to the Enchantments?
83.9% Washington; 9.7% Oregon; 6.4% all others

Thank you!

APPENDIX B
Sample Questionnaire for Monitoring Social Impacts

Everyone wants the Enchantments area to remain a high-quality recreation setting. To help make sure that it stays that way, we need to know more about the wilderness experience you had in the Enchantments area this year. This short questionnaire will help us monitor the effects of recreation use in the Enchantments area, and to ensure that we can provide the kinds of recreation opportunities that our visitors want.

Please try to answer every question, as a single missing answer may decrease the value of the rest of your responses. There are no right or wrong answers: the best answer is the one that most closely reflects your 1989 experience and your preferences for the Enchantments area. When you are done, fold the questionnaire into thirds, staple and mail it. Your postage has already been paid.

Thank you for your help with this project.

1. For what destination(s) was your 1989 permit issued? (please check all that apply)

☐ Enchantments Core	☐ Stuart Lake
☐ Snow Lakes	☐ Colchuck Lake
2. Which areas did you visit in 1989? (Check all that apply)

☐ Enchantments Core	☐ Stuart Lake
☐ Snow Lakes	☐ Colchuck Lake
3. Did you camp in the Enchantments area in 1989?
☐ Yes
☐ No -----> PLEASE SKIP TO #5 BELOW
4. Where did you camp? (check all that apply)

☐ Enchantments Core	☐ Stuart Lake
☐ Snow Lakes	☐ Colchuck Lake
5. During what month(s) did you visit? (check all that apply)

☐ June	☐ August	☐ October
☐ July	☐ September	
6. On what days of the week did you visit? (check all that apply)

☐ Monday	☐ Thursday	☐ Saturday
☐ Tuesday	☐ Friday	☐ Sunday
☐ Wednesday		
7. About how many other parties did you meet on the trail on an average day during your 1989 trip(s)?

☐ None
☐ 1-5 other parties
☐ 6-10 other parties
☐ 10-20 other parties
☐ More than 20 other parties

8. About how many other parties did you meet on the trail on the most crowded day during your 1989 trip(s)?
- ☐ None
 - ☐ 1-5 other parties
 - ☐ 6-10 other parties
 - ☐ 10-20 other parties
 - ☐ More than 20 other parties
9. Where were you hiking on the day you described in #8 above?
- | | |
|--|--|
| ☐ Enchantments Core | ☐ Stuart Lake |
| ☐ Snow Lakes | ☐ Colchuck Lake |
10. If you camped on your 1989 Enchantments trip, about how many other parties were camped within sight and sound of your campsite on a typical night?
- ☐ None
 - ☐ One other party
 - ☐ Two other parties
 - ☐ Three other parties
 - ☐ More than three other parties
11. About how many were camped within sight and sound of your campsite on the most crowded night?
- ☐ None
 - ☐ One other party
 - ☐ Two other parties
 - ☐ Three other parties
 - ☐ More than three other parties
12. Where were you camped on the night you described in #11 above?
- | | |
|--|--|
| ☐ Enchantments Core | ☐ Stuart Lake |
| ☐ Snow Lakes | ☐ Colchuck Lake |
-

(PLACE RETURN ADDRESS HERE)

APPENDIX C
Settings Considered Similar to the Enchantments

The following settings were identified by survey respondents as offering "an experience similar to the Enchantments experience." These areas may be especially likely destinations for persons who have been displaced from the Enchantments by the permit system:

Alpine Lakes Wilderness

Stuart Range
Spectacle Lake
Frosty Pass
Rampart Lakes
Tuck and Robin Lakes
Deception Pass/Surprise Creek
Tank Lakes/Necklace Valley
Grindstone Mountain
Larch Lake
Teanaway

North Cascades

Glacier Peak Wilderness
Seven Lakes Basin
Gothic Basin
Spider Pass
Methow
Mt. Hinman
Entiat
Seven Fingered Jack

South Central Cascades

Goat Rocks Wilderness
Mt. Rainier National Park
Butte Falls

Olympics

Olympic National Park
Mt. Skokomish Wilderness

Pacific Coast

The Oregon Coast

Northern Rockies

Yoho National Park (Canada)
Glacier National Park
Bob Marshall Wilderness
Sawtooth Wilderness
Lincoln-Sagegoat Wilderness

Central Rockies

Yellowstone National Park
Flat-Tops Wilderness
Grand Teton National Park
Wind River Range

Wallowas

Eagle Cap Wilderness

Sierras

Desolation Wilderness
John Muir Wilderness
The High Sierras

The Southwest

Canyonlands National Park
Pecos Wilderness
White Clouds

Midwest

Boundary Waters Canoe Area

British Columbia

Squamish
Bugaboos

APPENDIX D
Areas Where Use Has Increased Since 1987

The following settings in the Alpine Lakes Wilderness appear to have seen increases in recreational use since the establishment of the Enchantments permit system, according to Forest Service estimates. These destinations may be settings which are preferred by displaced Enchantments users:

Frosty Pass	Grindstone Mountain Area
Chain and Duelle Lakes	Tuck and Robin Lakes
Rachel/Rampart Lakes	Spectacle Lake
Glacier Lakes	Peggy's Pond
Ridge and Gravel Lakes	Park Lakes Basin

500. Shelby, B. Impacts of recreation use limits in the Alpine Lakes Wilderness. Corvallis, Or.: Dept. of Forest Resources, Oregon State University; [1990?]: 105 p. Cooperative Agreement no. PNW 87-423.